

Read Glor's Broadcast and Report of New
Jersey Sheet Metal Meeting in This Issue.

Editorial Index Page 11.

Advertisers' Index Page 44.

APR 8 1924

AMERICAN ARTISAN and Hardware Record

Vol. 87. No. 14.

620 SOUTH MICHIGAN AVENUE, CHICAGO, APRIL 5, 1924.

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Every standing seam roof is easily laid and is water tight when new, but here is a *Horse Head Zinc* standing seam roof that will remain weather proof for a lifetime—that will endure. It will not rust. It needs no protective coating. It resists weather and time.

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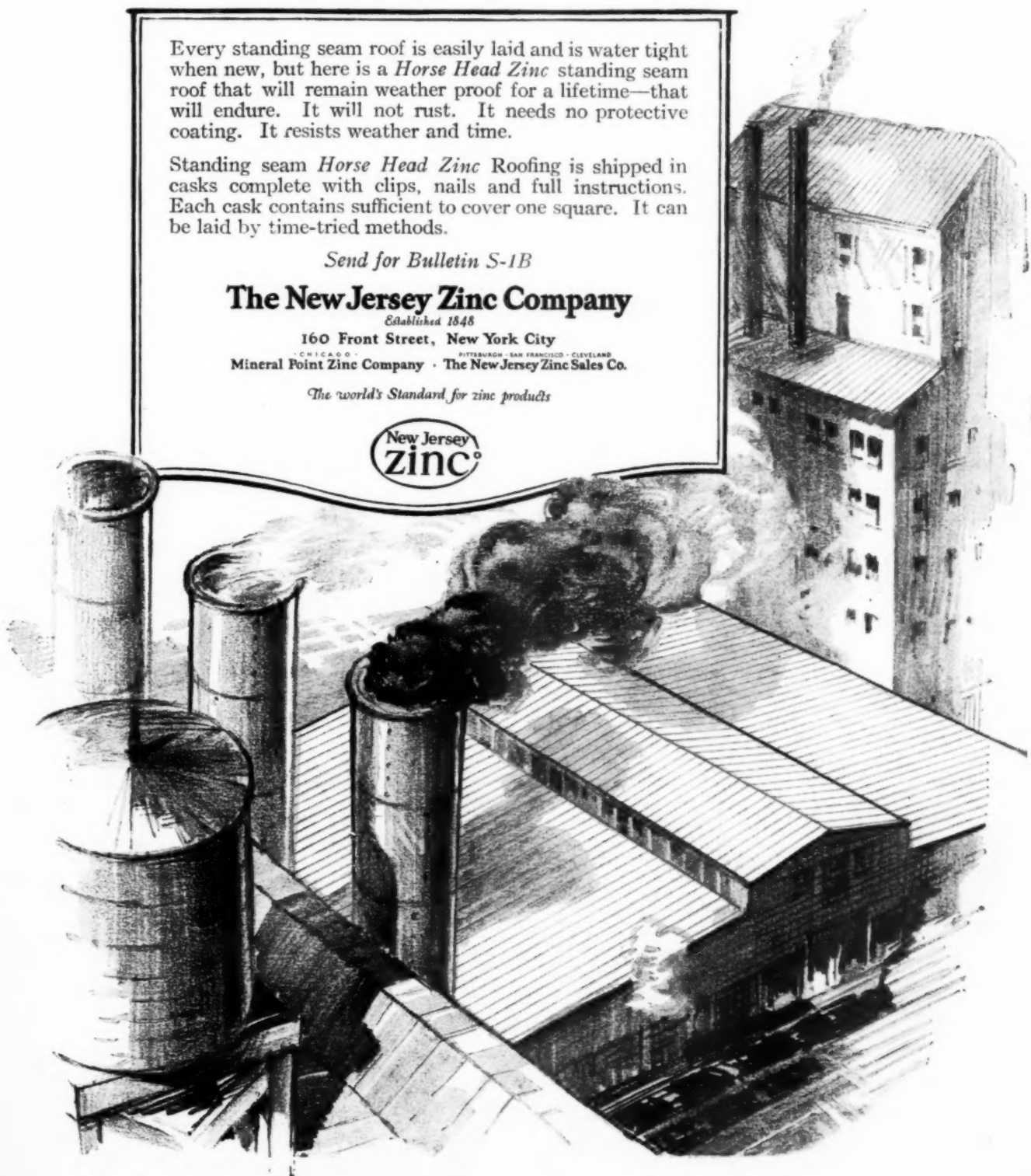
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Mineral Point Zinc Company · The New Jersey Zinc Sales Co.

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L. J. MUELLER FURNACE COMPANY

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Sheet Metal, Stove
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AMERICAN ARTISAN
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Table of Contents

	Page		Page
Editorial	13	Allen, of South Dakota, Says Frye's Method of Computing Circle Areas Is Too Slow...	27
Two Steps Taken—Now for the Third in Edu- cational Research Campaign for Furnaces..	13	Notes and Queries	29
Random Sketches, by Sidney Arnold.....	14	Hardware Department	30 to 33
Heating and Ventilating Department....	15 to 21	Sporting Goods Window Displays Must Rep- resent Action to Attract the Greatest At- tention	30
"Comfortable Heat in Every Room" Broad- casted from Station W. F. I., by E. F. Glone	15	Advent of April Compels Dealers to Concen- trate on Seasonable Lines.....	31
Furnace Location Must Have Preference Over Everything Else in Basement.....	17	Hardware Men Must Study Methods of Com- bating Chain Store Competition.....	32
More Help for G. T. Richter and His Draft Problem	18	Coming Conventions	33
Honeywell Heating Specialties Company In- creases Capital Stock	21	Retail Hardware Doings	33
Sheet Metal Department.....	22 to 29	Stove and Range Sales.....	34
Gable Design, Double Glass Skylight Patterns Are Not Difficult to Lay Out, by O. W. Kothe	22	Potter Stimulates Stove Sales with Unique Range Club	34
Zinc Roofs Can Be Laid at Fair Price, with Good Profit to Sheet Metal Contractors, Says Brannin	23	Advertising Criticism	35
New Jersey Sheet Metal Contractors Hold Their Third Annual Meeting.....	25	How to Make Folks Recognize Your Type of Advertising	35
		Markets	36 and 37
		Chicago Warehouse Prices on Hardware and Metals	38 to 48

WHY? LET US TELL YOU!

Ask questions when in doubt. The more you ask about your business the more you will know—and the more you know, the more money you will make.

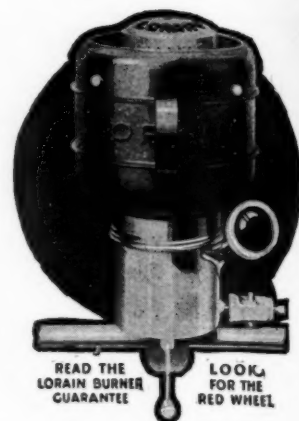
Whether you are a dealer, a salesman, a sheet metal man, an installer, or a hardware dealer, your questions will be gladly and promptly answered.

You may wish to know how to repair furnaces, take an inventory or increase the efficiency of your sheet metal shop.

Matters of law, business policy or organization may bother you. Get sugges-
tions from AMERICAN ARTISAN concerning them.

Answers to all questions will be held strictly confidential if so desired by the sender. If no mention is made to the contrary, questions and answers will be pub-
lished in the various departments of AMERICAN ARTISAN.

ALPHABETICAL INDEX AND CLASSIFIED LIST OF ADVERTISERS, Pages 44-46-48.



GUARANTEE

Should the inner combustion tube of the Lorain High Speed Oil Burner burn out within 10 years from date of purchase, replacement will be made entirely free of charge.

Mothers Know *Good* Cook Stoves

MOTHERS know *good* cook stoves—and praise them. Why shouldn't they? They use the stove day in and day out. They shoulder the entire burden of preparing delicious, nourishing meals for the family. They usually assume the blame for every failure.

They are good "salesmen," too—these mothers—quick to tell friends, neighbors and relations when something is discovered that saves time, labor, money—or that does the work *better*.

For nearly a half-century American mothers have used and praised the cooking appliances made by the several divisions of American Stove Company. The "good word" has been "passed"—in the home, at the church, club and lodge; in fact, wherever women meet—that stoves made by American Stove Company are *good* stoves.

And all this was true long before national adver-

tising was adopted by American Stove Company to attract the attention and gain the interest of millions of buyers old and new.

Five (short) years of national advertising have made Lorain Oven Heat Regulated Gas Ranges supreme wherever gas is used for cooking. And soon, in every district where gas is not available, Lorain High Speed Oil Burner Cook Stoves will be equally pre-eminent.

Stop and think of the effect of a national yearly distribution of a hundred million advertisements. Stop and consider the reputation of the maker. Stop and wonder at the number of actual sales made by tens of thousands of satisfied users. Go out and learn how supremely good the 1924 Lorain Burner really is. And, make your own estimate of the profit you can earn by selling Oil Cook Stoves equipped with the Lorain High Speed Burner.

AMERICAN STOVE COMPANY, St. Louis, Mo.

Many famous makes of Oil Cook Stoves are now equipped with Lorain High Speed Oil Burners, including:
Direct Action—National Stove Co. Div., Lorain, O.

New Process—New Process Stove Co. Div., Cleveland, O.

Quick Meal—Quick Meal Stove Co. Div., St. Louis, Mo.

Clark Jewel—George M. Clark & Co. Div., Chicago, Ill.

Dangler—Dangler Stove Co. Div., Cleveland, O.

LORAIN HIGH SPEED OIL BURNER

Two Steps Taken—Now for the Third in the Educational Research Campaign for Furnaces.



A FEW days ago the Advisory Board of the National Warm Air Heating and Ventilating Association approved the contracts for the construction of the Educational Research Residence in Urbana, Illinois, with the exception of the roof which it was decided to have covered with copper shingles, instead of the material which had been specified by the architect.

Another important step has thus been taken and other link forged into the chain which began with the establishment of the Research Work at the University of Illinois under the supervision of Professor Willard.

The next step will be the organization of the Educational Research Bureau through which the technical and practical information that is being collected at Urbana is to be distributed to the public and to the installer.

President Langenberg of the National Warm Air Heating and Ventilating Association, appointed a special committee some time ago to investigate the trade extension movement with instructions to report at the annual convention of the Association which is to be held Wednesday and Thursday, April 16 and 17, at Hotel Winton, Cleveland.

The three members of this committee, Messrs. E. F. Glore, George Harms and Arthur P. Lamneck, are all successful manufacturers of warm air heating equipment as well as highly efficient managers of salesmen. Their experience covers many years of progressive work and steady advancement. At least two of them started in a small sheet metal and furnace shop, so it is not at all too much to expect that they will make a report which will be comprehensive and intensely practical, insofar as its application of "trade extension" to the installer and the general public is concerned.

And it seems to us that the time for starting

a real trade extension movement in the warm air furnace field is right now, even if the start may only be made in a comparatively small and inconspicuous manner.

Furnace manufacturers have, as a rule, not accumulated great surpluses of capital. Their profits are not as large as in many other fields, so naturally they cannot be expected to "create" an advertising fund which comes anywhere near those in other industries, where profits are far greater.

But the beginning can be made now, and we believe that a good start can be made this year at a very small initial outlay.

As a suggestion—many of the manufacturers and installers have enough influence in their home cities to arrange for the delivery of talks on "Healthful Heating," for the publication of newspaper stories on the same subject, for the broadcasting of lectures, such as those now being delivered by Mr. Glore, two having been published in *American Artisan*, the latest in this issue, on pages 15 and 16.

All that is necessary is have someone prepare these talks, newspaper stories or lectures and distribute them to those whose job it will be to arrange for their promulgation.

In each section or district, a chairman would be appointed to make these arrangements, care being taken to select men who will actually pitch in and get the job done.

* * *

When the plans for the Educational Research Residence, which is to be built by the National Warm Air Heating and Ventilating Association, were submitted by the architect, it was found that he had provided for a roof of asbestos shingles. Of course, the plans were changed, and a copper single roof will be built, but this is just another instance that goes to show the need for some educational work being done by the metal roofing people.

Random Notes and Sketches.

By Sidney Arnold

According to the once popular but now antiquated melody, the spring of the year was made expressly for the young men, whose thoughts fanned by the balmy spring breezes always "turned lightly to love"—certainly they could have done much worse. The song, however, contained nothing about the consequent matrimony, or the fair young and dashing "damozels" in the case—as though the three were not inseparable!!

Lloyd E. Sampson was reported in last week's AMERICAN ARTISAN to have joined the sales force of Tuttle & Bailey Manufacturing Company. However, on later information it developed that Mr. Sampson had not only accepted the position on the Tuttle & Bailey sales force, but had also acted upon the advice of a fevered brain and had joined the long line of Benedicts.

But that's not the worst of the miserable tale.

During the Dark Ages, history informs us that the Black Plague was not only of such a contagious nature that in a short time it had spread over the Continent, but to England as well, mowing down young and old alike before it.

The contagion of the Black Plague, however, could not hold a candle to the devastating effects of matrimony, which makes a special target of the flower of the nation.

Close upon the heels of the news of Lloyd Sampson's fall comes the shocking and exasperating statement of "Bill" Laffin, himself only recently married, that Dave Farquhar, one of the most popular and promising young men in the trade, was stricken down last Monday, when he and Miss Donna Krai, of Chicago, were united in the holy bonds of matrimony. (Oh, Dave, if you only knew what those words mean and what they imply! If you had only warned me before it was too late!! But now, alas! your pockets

will no longer jingle as of yore! Your freedom, too, is now ended!)

The guilty culprits appeared before the indignant but paternal Laffin shortly after the ceremony, offering supplication.

Dave has gone to Kansas City, where he will take charge of the new office of Tuttle & Bailey, and his charming bride will follow him within a month.

AMERICAN ARTISAN extends its most hearty congratulations and best wishes to both Mr. and Mrs. Sampson, and Mr. and Mrs. Farquhar.

* * *

The following words from James Charles Allen regarding the death of George Carr are particularly appropriate at this time:

"It was with deep regret that I learned of the passing of Brother Carr. To meet him was to respect him. To know him better was to love and honor him, always jovial, happy externally with a kind word and a helpful hand to every honest and well doing knight of the road. Fair and impartial in his judgment, and a friend whom we shall all miss. To say less would be not the truth. To say more would be this: One who commanded and kept the respect of every one with whom he mingled. Such a man was George B. Carr."

* * *

R. E. Pauley, the new President of the Iowa Sheet Metal Contractors' Association, is one of those unfortunate fellows whose names are spelled wrong more often than right. Somehow, the average American seems to delight to show his disdain for rules and regulations by spelling any name about which there can be any doubt, the wrong way.

But Mr. Pauley is not at all touchy about it. In fact, they have been calling him all sorts of things ever since he was a boy.

In school his nickname was "Polly" and later on when he went to college he was known as "Paul Lee, the Chinese Student."

But no matter how they spell his name or what they call him, President Pauley is the sort of man who is bound to make his mark—as he is doing right now—because he combines the two important faculties of thinking straight and of putting his thoughts into action.

* * *

Harry Neal, of the Hall-Neal furnace folks, was doing some figuring on a big job in Madison, where one of the Indiana asylums for the insane is located. To refresh his mind he took an inspection trip through the place. The guide pointed out a "case."

"This is one of our worst cases. He used to be a doughboy in France."

"Shell shock?"

"No, right after he got out of the army he went into a restaurant to get a big feed, and found they were all out of everything except beans, prunes, cornmeal mush, canned salmon and canned corned beef. It was too much for him."

* * *

Roy Walker, who dreams about Weir and Warm Home furnaces at night and talks about them all his waking hours, finds time, however, once in a while to tell me a good story, and here is one of his latest resurrections:

Years ago a very popular vaudeville act consisted of a performer standing a woman in front of a high wood panel and then throwing knives so they would stick very close to the body of the performer's assistant. Once during this performance in a western town, one of the audience left in a huff, swearing that he'd never come near the place again because of the poor performance.

"Poor!" exclaimed an admirer, "why, I call that a demonstration of real skill." To which the disgusted one retorted: "You call that skill? Why, that man threw nineteen knives and missed her every time!"

Stand-by for E. F. Glore's Second Broadcasting Subject "Comfortable Heat in Every Room."

This Is the Second in a Series of Talks on Heating Which Mr. Glore Is Broadcasting From Philadelphia Radio Station.

THE second talk on house heating in the series which E. F. Glore, Treasurer and General Sales Manager of Abram Cox Stove Company, has been broadcasting from Station WFI in Philadelphia, was delivered a few days ago, and it contains so much helpful advice that we are glad to publish it in full herewith and thus give our readers among the furnace installers an opportunity to make use of these ideas in their sales campaign.

Mr. Glore's talk, which had for its subject that of "Comfortable Heat in Every Room," follows:

Mr. Glore's Talk on Heating.

The subject of our last talk on heating was "How to get the most out of your coal bin," in which we discussed the general conditions of the heating system, whether it be a warm air furnace, steam, vapor, or hot water system. Attention was called to the importance of the smoke pipe from the heater to the chimney being of the same size as the outlet of the smoke box, and the necessity of having the heating plant examined by a competent person to make sure that the smoke pipe is of the right size and that it is taken down and cleaned out.

A number of letters received on this point from those who heard the last talk, stated that the dust pocket at the bottom of the chimney is opened every year and the accumulated soot removed. While this is helpful, it still does not remove the accumulation of soot in the smoke pipe itself. To prove this, if you will go in your cellar and tap the bottom of the smoke pipe, you will hear a noise which indicates that it is full of soot. As stated, this accumulation of soot in the smoke pipe reduces the size of the opening and makes it necessary to burn more coal, wastefully, to get the gases

from the heater through the smaller opening.

We also advised you to try the cheaper sizes of coal, and already we have information that a number of people who heard us the last time have tried this with success. In a few cases where it did not work out, we have been able to put the writer in touch with a competent heater man who, by correcting the faults (chiefly a dirty smoke pipe and accumulation in the chimney), has en-



E. F. Glore.

abled the use of the cheaper sizes of fuel.

The Room That Cannot Be Heated.

Today it is our purpose to talk on the subject of "Comfortable Heat in Every Room," as we received many letters stating that while the heater works satisfactorily, a certain room in the house or part of the house does not register the required temperature. This may be true whether you use a warm air furnace or a steam or hot water boiler; to make the matter clear as to the cause for lack of heat in a certain part of the house, we can use a simple illustration of capacity in water.

Very frequently when we are thirsty, we will drink a glass of water, and find it necessary to drink an additional glassful in order to quench our thirst. In like manner, a certain room requires a definite amount of heat to bring the temperature to 70 degrees; and if the size of the warm air pipe leading from the furnace to the room is too small, or the register too small, or in the case of steam or hot water heating the size of the pipe leading from the boiler is too small, or the size of the radiator is too small, to furnish the required amount of heat—it is a very simple matter to increase these and permit of more heat capacity into the room; and thus as in the case of the glass of water, by introducing more heat into the room, you are able to raise the temperature to the desired degree.

In other words, if you had a large enough glass for the water in the first place, you would not have needed an additional glass of water. And if you have a large enough warm air supply or radiator, you would not need anything in addition to give the required heat.

Don't take it for granted, however, that the insufficient heat in one or more rooms is always caused by the small pipe or small radiator referred to, as the thing to be corrected may be in some other part of the apparatus. What we have said is only suggested to prompt the thought that whatever may be the trouble, it can be easily corrected by some one who knows about heating. Just as you would consult your doctor in case of illness, you should in like manner consult those who know how to cure heating ills. And if the first doctor you call does not prescribe the correct remedy it would be well to seek the advice of another one.

Determining the amount of heat

necessary for certain conditions and installing an apparatus for obtaining it is just as simple as determining the amount of lumber or of anything else necessary to build, equip and furnish a house. But most people consider it a difficult proposition and do not inquire into the fundamentals sufficiently to discover that after all it is very simple.

Who Can Give Proper Information?

There are thousands of people in the business of furnishing and installing heating apparatus, almost any one of whom can give correct advice as to how the system can be made to operate satisfactorily with a minimum of expense in fuel and attention.

If your heating plant has not proved satisfactory it may be that you have come to the conclusion that the kind of heating installed in your house is not the best or most satisfactory that can be obtained. For instance, if your house is heated with a warm air furnace, it may be that warm air heat was very satisfactory when you first moved in the house. But after some years of use, it does not work as it formerly did, and you have come to the conclusion it is worn out. Or, being influenced by advertising, have decided that it is an old-fashioned system and you will not get the best results until you change from warm air to steam or hot water. Or, you may have lived in a house where warm air was the means of heating, and having moved into a new house where steam or hot water was the method used, regret that you did not have the same warm air system in the new house that you had in the old. You make inquiry as to whether the steam or hot water plant could be removed and a warm air system installed. It is a fact, that there are a lot of cases of this kind. It is also a fact, that the method of heating houses in particular is different in different parts of the United States and all are satisfactory.

Style in Selecting Heating Apparatus.

In Philadelphia the style is to insist upon hot water heat in new houses. This is said to be the best

method of heating the Philadelphia houses! In New York City, the majority of new houses are heated with steam. Very few people will have anything but steam in New York; and in fact if they go into a house which is heated by warm air or hot water, they make an objection to it. Furthermore in a city like Minneapolis, Minnesota, where the temperature goes down to 30 degrees below zero, the approved method of heating houses which are usually much larger than houses in Philadelphia and usually built singly or in pairs instead of in rows—the popular heating system is warm air.

I am only speaking of the majority of cases, because in all of the centers there are those who prefer the different methods and insist upon them. Therefore, it is really not the kind of system you have, but if it is installed properly and of large enough size you will get as much satisfaction with one kind of heating as another. If the heating plant in your present home is not working properly or giving you even heat in every room, instead of considering tearing it out and spending money to put in a different kind of system, you will find that in the case of a heater which has been installed for some years and, as stated, formerly was all right, that it is either worn out, dirty or broken.

For a comparatively few dollars, the whole plant can be put in first-class shape and made to work as it did formerly. Therefore if you have warm air heat and it does not function properly, get a heating doctor to examine it. This examination will probably not cost you any money nor obligate you to give the heating doctor any contract, unless you have confidence in his ability to restore the plant to its original state or make needed improvements.

In like manner, if you have a hot water or steam heating system and something is wrong, the heating doctor will give you advice, in most cases without any obligation on your part, and you will thus save a change which probably would not be of benefit.

In a later talk on this subject, we will discuss the installation and operation of each kind of heating system referred to such as warm air, steam and hot water.

Carr Supply Company to Continue Without Interruption on Original Broad Policy.

At an informal meeting of the board of directors of the Carr Supply Company following the death of its head, George B. Carr, reported in last week's issue of *AMERICAN ARTISAN*, it was decided to continue the business, uninterrupted, by those who were associated with Mr. Carr for the past several years. This will mean that the business will be continued on the same broad, liberal and progressive plan as it was during the life of the late Mr. Carr.

The officers will be as follows: President, Frances J. Carr; Vice-President, Dale V. Carr; Treasurer and Manager, Edward P. Mott; Secretary, Howard L. Mason.

Glenn V. Carr is also associated with the business.

Fox Maintains That Certain Types of Gratings Have Much Larger Capacity Than Others.

E. C. Fox, of the Independent Register & Manufacturing Company, states in a folder just placed in the mail that his "fabricated pipeless gratings have approximately 35 per cent larger open area and therefore greater capacity than cast gratings of the same size."

It is also claimed that these gratings will not change shape while in use and that they do not break.

Copies of the tables of capacities showing comparisons between the two types of grating may be obtained by writing to Independent Register and Manufacturing Company, Perry-Payne Building, Cleveland, Ohio.

Failure to keep copies of orders and failure to keep receipts for money paid are the means of the annual loss of thousands of dollars to business men.

Gunton Maintains That Location of Furnace Must Have Preference Over Everything Else in Basement.

Giltedge Heating Engineer Says Installer Must Insist on Doing His Work Right Instead of Suiting Whims of Persons Who Do Not Know His Business.

THE two illustrations herewith show basement and first floor plans for a warm air furnace installation, designed by W. Gunton, Heating Engineer with R. J. Schwab & Sons Company, manufacturers of GiltEdge furnaces.

Mr. Gunton makes the following pertinent observations on some of the troubles of the average installer:

"In laying out the heating of the building shown here, the items in the basement, such as coal bins, wash trays, clothes chute, vegetable room, etc., have been disregarded entirely, for these items are often given more consideration than the heating

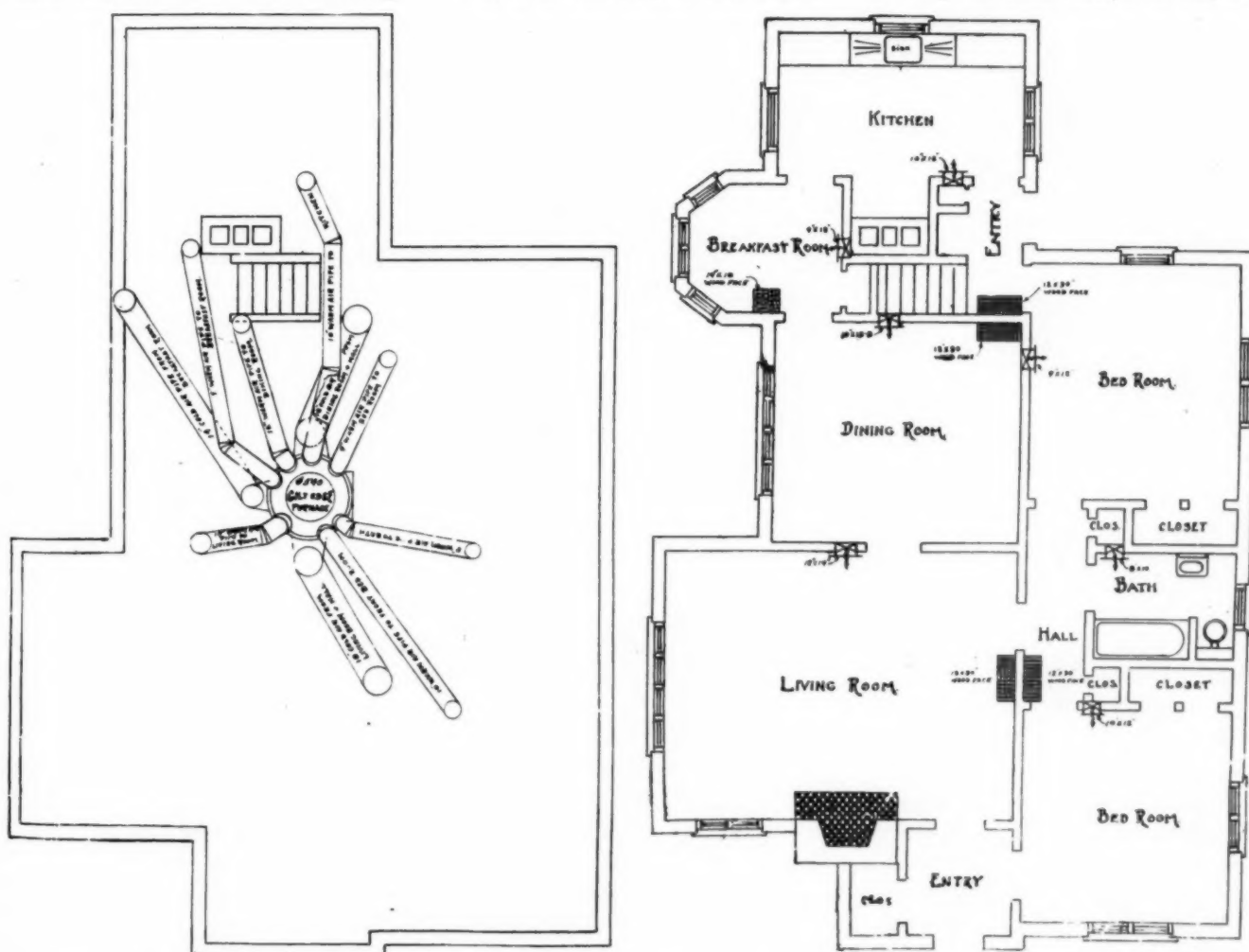
plant, with the result that a number of plants fail to give the satisfaction expected.

Houses are sometimes heated without regard to the location of the plant, but only at the expense of the coal pile, for with a poorly located plant the combustion rate of the furnace must be greatly increased, and also the temperature of the air, in order to give it the force (which is created by the difference in the temperature of the air) necessary to overcome the friction in the long runs, the crooked pipes or pipes without proper elevation.

"It is a well known fact that as

the combustion rate in a heating plant increases over a normal rate, its efficiency decreases, with the result that an unnecessarily great amount of fuel is used.

"The satisfactory heating of a home is certainly of more importance than the location of the coal bin, or other items in the basement, yet we know that it is generally given less consideration, and in some cases no consideration at all, the coal bin as well as other fixtures in the basement, even including the domestic boiler, being located first, and the heating contractor is supposed to place his furnace convenient to these, regardless of whether it is located so as to give the best results or not. If the heating contractor objects, he is often told that if he cannot place it there, some other man will, and rather than turn the job down he takes the contract, allowing the other fellow to tell him



Basement and First Floor Plans for Warm Air Furnace Installation Designed by W. Gunton, Heating Engineer with R. J. Schwab & Sons Company, Milwaukee.

how to install the job, while he (the heating contractor) is responsible for the heating of the building.

"The heating contractor, if he wishes to build up the industry to the standing it deserves, should in all cases either insist on the proper location for his plant or refuse to take the contract, and if this were done, it would not be long before the same consideration would be given the furnace man as is now given the other tradesmen on the job. If the electrician wants a certain space for his wires, he gets it; if the plumber wants a six-inch partition for his soil stack, he gets it; but if the furnace man wants a six-inch partition for a stack of the correct size to heat a certain room, he is unable to get it. Why? Because some other heating man either does not know how to figure capacities or is willing to take a chance in order to get the job.

The register and piping areas for installation shown herewith are figured according to the National Code, and are as follows:

Living Room 15x20 feet.....	2,700 cu. ft.	
Wall Surface	254 sq. ft.	
Glass Surface	88 sq. ft.	
Piping area required.....		148 sq. in.
Dining Room 12x14 feet.....	1,512 cu. ft.	
Wall Surface	108 sq. ft.	
Glass Surface	35 sq. ft.	
Piping area required.....		72 sq. in.
Bedroom 12x12 feet.....	1,296 cu. ft.	
Wall Surface	173 sq. ft.	
Glass Surface	43 sq. ft.	
Piping area required.....		79 sq. in.
Bathroom 6x8 feet.....	432 cu. ft.	
Wall Surface	54 sq. ft.	
Glass Surface	15 sq. ft.	
Piping area required.....		36 sq. in.
Bedroom 12x12 feet.....	1,296 cu. ft.	
Wall Surface	186 sq. ft.	
Glass Surface	36 sq. ft.	
Piping area required.....		68 sq. in.
Kitchen 8x14 feet.....	1,008 cu. ft.	
Wall Surface	270 sq. ft.	
Glass Surface	50 sq. ft.	
Piping area required.....		108 sq. in.
Breakfast Room 7x8 feet.....	504 cu. ft.	
Wall Surface	180 sq. ft.	
Glass Surface	40 sq. ft.	
Piping area required.....		56 sq. in.
Total requirement.....		567 sq. in.

"The sooner the heating contractors insist upon the rights extended to the other tradesmen, the better it will be for all concerned, and the one who will realize the greatest benefits will be the home owner."

With a total warm air pipe area

of 634 square inches. The cold air returns being two 18-inch and one 14-inch, or a total of 662 square inches. The furnace used is a Number 540 GiltEdge, having a rated capacity in leader pipe area of 700 square inches.

Here's Further Help for G. T. Richter and His Chimney Draft Difficulties.

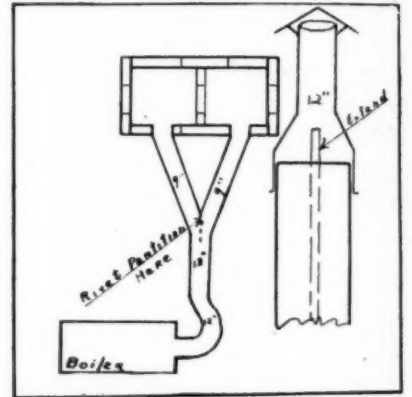
Many Sections of the Country Represented in Answers and All Agree on Trouble and Remedy.

IN THE March 22nd issue, page 17, of AMERICAN ARTISAN there appeared a query by G. T. Richter, headed "How Can You Make This Double Flue Draw?" In the March 29th issue, pages 19 and 20, there were published six answers to this problem, and each author had diagnosed the trouble precisely the same.

In addition to those answers already published, there were several that came too late to get in last week's issue and we are giving those hereinafter.

"Hoot Mon" Charles Hahn, Chicago, writes as follows:
TO AMERICAN ARTISAN:

A short circuit of the air takes place in the chimney. To correct



"Hoot Mon" Shows Richter How He Would Correct the Flue Installation.

this, extend the partition six inches and cover both flues with one stack. At the lower end bring the partition down again and connect with a "Y."

The 9-inch pipe from the boiler must be a mistake. A 12-inch pipe would be correct.

HOOT MON.

A warm air friend writes:
TO AMERICAN ARTISAN:

Kindly tell G. T. Richter, page 17, March 22nd issue, to close one opening at the top of the chimney. This will make the chimney draw much better.

If it should happen, however, that this does not give his heater enough draft, tell him to either build a new chimney, 12x12 inches, or to take the partition out from between the flues.

WARM AIR FRIEND.

I. F. Grumbein, President National Heating and Ventilating Company, Philadelphia, writes as follows:

To AMERICAN ARTISAN:

In order for Mr. Richter to discover his trouble, he needs only to cover the top of one flue. He will then find that the draft will be O. K.

It may possibly be that the draft will not be great enough, as the flue should not be less than 12x12 inches.

The center partition should be removed.

Yours truly,
I. F. GRUMBEIN.

N. E. Tinker, Lubbock, Texas, has had a similar experience and expresses himself as follows:

To AMERICAN ARTISAN:

Some time ago I had a job precisely the same as that of G. T. Richter, page 17, March 22nd issue.

To correct it, I stopped up one side of the flue at the top and bottom, and had no further trouble after that.

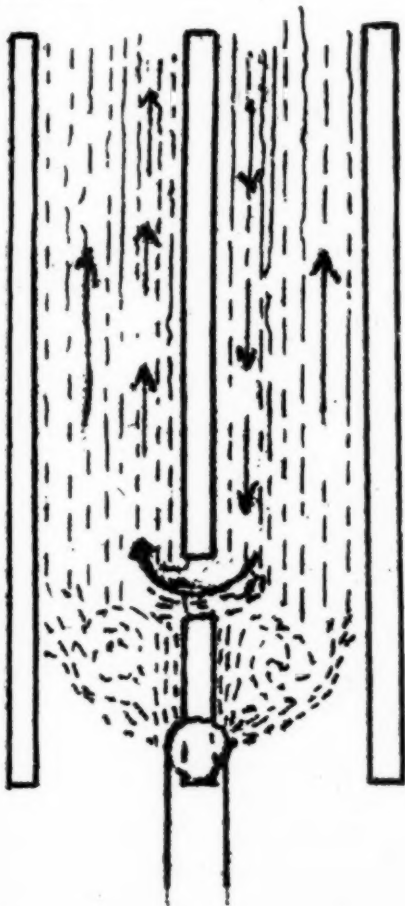


Figure 1 Shows What Happened in Richter's Furnace Installation.

As it now is, the air goes down one side and up the other without going through the boiler.

Yours truly,
N. E. TINKER.

From far away Nova Scotia comes the following reply from C. F. Cox:

To AMERICAN ARTISAN:

In reply to G. T. Richter's difficulty of the double flue, I wish to submit the following solution:

First of all, the area of one-half the flue, 7x10 inches, is seventy square inches, which is sufficiently large to care for a 9-inch pipe, which is only 635 square inches.

The best way for Mr. Richter to do is to take out one-side of the flue in the cellar and build up the center partition, making two separate flues.

I have seen a number of cases the same as his and find the air comes down one side the flue, around the partition and up the other side. The only way to overcome it is to have the center partition go to the very bottom of the flue, with two flues independent of each other.

Yours very truly,
C. F. COX.

H. F. Iler and M. J. De Vriendt, Madison GiltEdge Company, Madison, Wisconsin, write as follows:

To AMERICAN ARTISAN:

Figure 1 will give Mr. Richter an idea of how his chimney is acting at the present time.

Figure 2 shows how this chimney can be made to function properly without any great amount of expense.

The change in smoke pipe arrangement as shown will be of material help providing it can be arranged that way.

Yours very truly,
H. F. ILER and
M. J. DE VRIENDT.

Then, too, along comes "Philadelphian" with a diagnosis and solution as follows:

To AMERICAN ARTISAN:

I have read Mr. Richter's draft problem in your issue of March 22nd, and wish to offer a solution.

By removing six feet of the partition of the double chimney, a down draft was created. This draft went down one side of the flue to the point where the portion of the partition was removed. At this point it flowed through the opening and

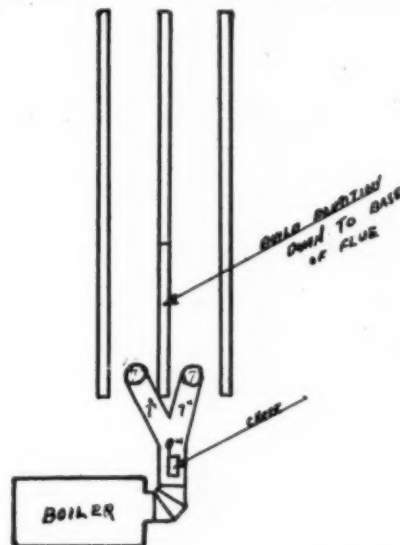


Figure 2 Shows Method of Correcting Error in Chimney Flue.

went up on the other side, without having any affect on the boiler.

Had this chimney been left intact, the one chimney would have functioned properly, since the chimney has an area of 70 square inches and the 9-inch smoke pipe 63 square inches.

To remedy the difficulty I should suggest that Mr. Richter make a galvanized iron pipe of heavy material and insert it in the chimney above the point where the partition was removed, and seal the space around it with cement or make a "Y" branch and use both.

Yours very truly,
PHILADELPHIAN.

From Crawfordsville, Indiana, also comes an answer to Richter's S. O. S., written by J. C. Boone, of the "Farquhar" Heating Company of Western Indiana, who says:

To AMERICAN ARTISAN:

I, too, believe that I can be of service to Mr. Richter in straightening his flue problem appearing in the March 22nd issue of AMERICAN ARTISAN.

If he will run a 9-inch pipe from the top of the flue and fasten the

flue from the boiler to it, his troubles will all be over.

Yours truly,
J. C. BOONE.

EDITOR'S NOTE: On pages 19 and 20 of our March 29th issue there appeared six replies to Mr. Richter's problem. Four states were represented in these solutions, one of them, Kansas, at considerable distance from Chicago, the point of issue of AMERICAN ARTISAN.

In this issue eight more letters appear from furnace men anxious to help Mr. Richter in his difficulties. One of these letters came from a man as far away as Nova Scotia.

These replies, coming as they do from practically all sections of the country, are unquestionable proof that the men who comprise the warm air heating and kindred industries have the interests of each other at heart.

Though separated by wide expanses of space, they are enthusiastically cooperating to weld the warm air heating fraternity into one closely knit Association for the purpose of advancing their common purpose—the production of more dependable, economical and healthful heating.

The fact that these men are separated in many instances by many hundreds of miles does not lessen their ardor, but it makes them appreciate all the more the necessity of a dependable mouthpiece through which they can voice their own opinions and keep in touch with the trade doings.

It makes them realize that without a medium of thought they would be little separated entities working along alone with antiquated methods and tools, and worse still, with antiquated ideas, which is always disastrous to the individual and the business he represents as well.

Deeds speak louder than words and indicate to what extent AMERICAN ARTISAN is considered the medium through which all branches of the industry are able to exchange information and thereby attain to a more unified organization.

Here's Warm Air Furnace Installation Giving Unsatisfactory Results. What's Wrong?

Many and varied are the difficulties which the warm air furnace installers encounter during the course of a year. Most of these are solvable by the installer himself, but occasionally he meets one that stumps him and is obliged to call for help.

George J. Gag, New Ulm, Minnesota, has submitted a problem which he wishes worked out.

He writes as follows:

TO AMERICAN ARTISAN:

I have mailed you sketch of a first floor plan of a house, showing a warm air heating plant which is a failure.

Under the present installation, the house can not be heated to 70 degrees in zero weather.

I believe there is something wrong in the circulation, and I should like to have an experienced brother craftsman explain how to remedy the defect.

At the present time it takes two tons of soft coal or Pocahontas coal,

but still the house remains cold. The only place that is warm is in the basement.

The second floor has got three bedrooms about same size as first floor rooms, with no cold air return except in a riser in the lower part of the stairs.

I hope somebody is able to make a suggestion which leaves no guesswork about it.

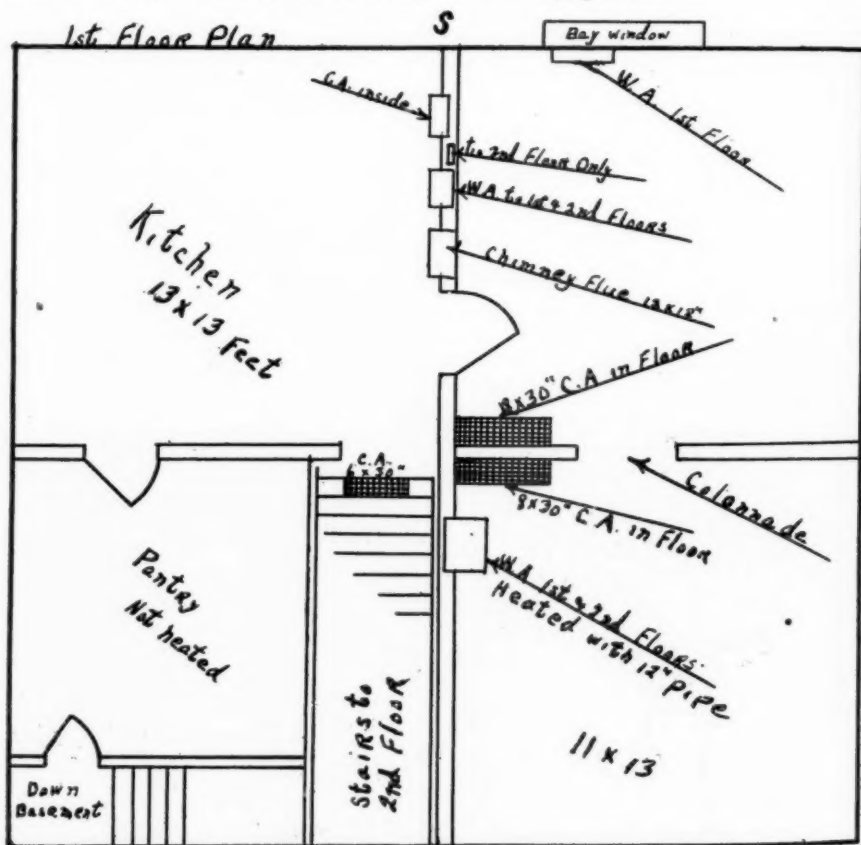
The basement plan shows the furnace installed in the center of the room. The cold and warm air ducts leading to and from the furnace to the registers are 12-inch. The chimney is a 12x12-inch flue. The firepot is a 24-inch tile construction, while the furnace is of steel construction.

Yours truly,

GEORGE J. GAG.

New Ulm, Minnesota.

As a merchant your standing among people depends upon what your store equipment is like, just as a farmer's standing in your eyes depends upon the condition of his farm equipment.



Plan of First Floor, Showing Location of Registers, Both Warm and Cold Air, in G. J. Gag Installation.

Honeywell Heating Specialties Company, Indiana, Increases Capital Stock.

*\$100,000 Preferred Stock Recently Issued by
Company to Increase Its Manufacturing Facilities.*

THE Tea Pot Dome and film scandals which have thrown the spotlight of publicity upon so many of the public's "trusted" representatives, the approaching Presidential election and the reluctance of Congress to function rapidly on giving business the relief from oppressive taxation it so sorely needs has had little or no effect upon the progressive business men of the country.

The foremost of these see the light of prosperity streaming through the oily mist and are preparing for the increased business which they see in the offing.

In the warm air heating industry we have several notable examples of facilities being increased to care for the larger demand. The most recent of these is the Honeywell Heating Specialties Company, Wabash, Indiana, which has just recently issued \$100,000 preferred stock. This increase, together with increased manufacturing facilities, have followed a very remarkable growth in the company's business during the past few years.

The recently acquired plant as illustrated herewith will be used to supplement their present factory capacity and will be known as Plant No. 2. The original factory will be known as Plant No. 1 and will be devoted exclusively to the manufac-

ture of motors, while Plant No. 2 will be used for the manufacture of the balance of the Honeywell line of temperature and pressure controlling equipment. Under this new arrangement the Company will be prepared to more than double their former output.

Since 1921 the Honeywell Company's business has doubled each year and according to statements of their officials, prospects for 1924 are favorable for an increase in volume of from 75 per cent to 125 per cent. This increase is attributed to the increasing demand for the automatic control of heating plants using coal, gas or oil as fuel.

Mellon Tax Plan Explained in Pamphlet by Otto H. Kahn.

The question confronting many business men today is whether or not they are making the best use possible of the multitude of activities carried on by the national government to assist business.

Just now one of the biggest problems is to get a substantial reduction in the taxation of business without diminishing the amount of revenue to meet the expenses of the government.

Within the last few months the Republican party has put

forth a tax reduction plan popularly known as the Mellon tax plan. There has been so much spoken and written on this plan that it has perhaps led to confusion.

In order to obviate this possibility and to make sure that every business man could become thoroughly conversant with the plan, Otto H. Kahn, who needs no introduction in the financial world, has written an article on the Mellon tax plan. This article is embodied in a small pamphlet now being distributed by the Citizens' National Committee in support of the Mellon tax reduction proposal.

Every business man should avail himself of this opportunity of getting first-hand information on a subject of such vital importance to himself by writing to the Committee named heretofore at Hotel Biltmore, New York City.

What, Another? Yes, Just One More Assurance of Our Ability to Be of Service.

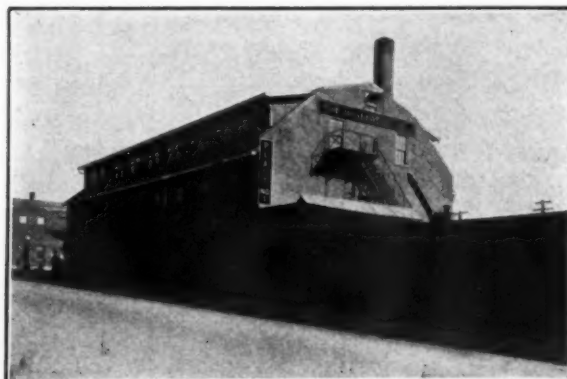
Please discontinue my want ad in AMERICAN ARTISAN. I have received many favorable replies to it, and thank you very much for this service. Yours very truly,

G. L. JOHNSON.

East Moline, Illinois.

If you hear a man complain of the cost of advertising, you can be pretty sure he spends a good deal of his money elsewhere than in AMERICAN ARTISAN.

An optimist is a fellow who still carries a cork-screw on his key ring.



Showing Plants No. 1 and No. 2 of the Honeywell Heating Specialties Company at Wabash, Indiana, One of Which Was Recently Acquired and Occupied.

Gable Design, Double Glass Skylight Patterns Are Not Difficult to Lay Out.

Some Made to a Third Pitch, Others to Quarter, While Still Others Are Half Pitch, Says Kothe.

Written Especially for AMERICAN ARTISAN by O. W. Kothe, Principal, St. Louis, Technical Institute, St. Louis, Missouri.

SKYLIGHTS that are made with a double glass in the gable design are simple to lay out. First, draw the pitch line of the skylight, which is generally made to a third pitch. Some are often made to a quarter pitch, while others to a half pitch. The reason for a half pitch skylight is that it contains an increased amount of glass surface. Then, too, because of its inclined position, more light will be reflected than if the opening in the roof were just covered with a flat skylight.

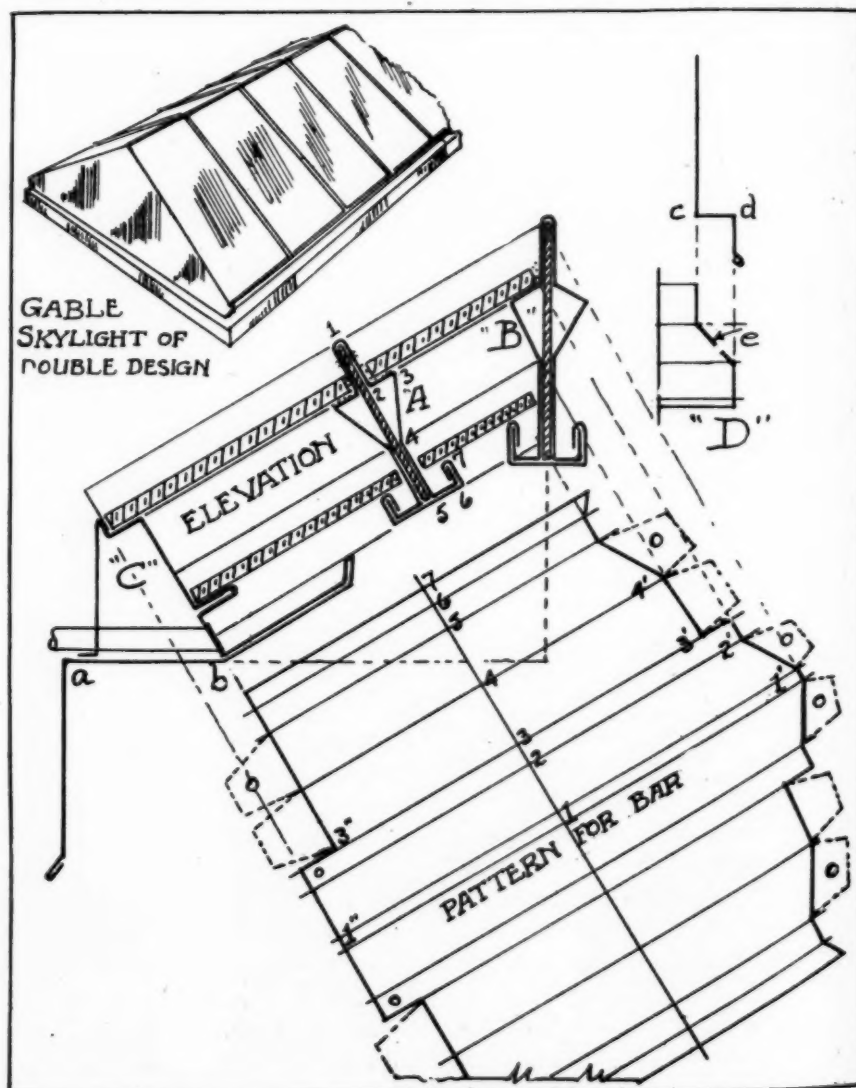
The next step is to draw the design of common bar "A" at right angles to the pitch line. This common bar can be made in any one of a half a dozen different designs, the only requisite being that it have sufficient strength and that it embody the principle for holding the glass, as well as catching condensation or moisture leaking down. When this bar is designed, extend lines both ways to all bends and at some convenient place fill in the ridge bar "B" and also the lower curb "C." These latter designs can also be varied to suit individual taste or requirement; but in this case, we have sought to make the entire designs uniform. For heavy skylights the lower curb "C" should be reinforced, either with an angle or by means of blocks built in so as to prevent the glass pushing the curb away and thereby allow leakage or breakage.

From the sketch we see that both sides of skylight are alike and, therefore, only one pattern is necessary, while the half end can be reproduced direct from our elevation, allowing only the offset and apron similar as shown by the above detail "D." To set out the pattern for the common bar and also the half bars for the gable ends, draw any set line at right angles to the pitch line, as

1-7 extended. On this line set off the girth for the common bar detail "A" and then through each point draw lines parallel with the pitch line of elevation. Now from each point where lines of "A" intersect the ridge bar "B," there square them out into stretchout until they intersect lines of similar number, as in points 1'-2'-3', etc. The same holds true with where the lines of "A" intersect the lower curb "C"; square out lines into stretchout to intersect those of similar number as shown. To this laps must be allowed similar

as shown, since these lugs must be riveted to the ridge bar and the lower curve as shown.

To develop the offset of curb "C" all that is needed is to draw a detail as at "D," which also has the offset of the gable end as c-d and develop the miter e in pattern, which is in this case a 45-degree line. Sometimes it does not work out that way when the offset in the gable end is different than the offset on the side curb; but in any case, the difference will not be enough to cause any trouble. When the common



Working Drawing of Pattern for Skylight with Double Glass.

bars are formed into their proper shape and the core iron is filled in, with the lower cap strip clamped in position, then holes could be drilled in the straight pins for rivets to prevent the core iron from acting separately from the common bar. So in this way the entire bar will be as one space and will resist pressure. The weight of these core irons must be made with judgment; sometimes only galvanized iron strips made of 20-gauge metal are used; other times such a strip of metal is doubled over, thus making two thicknesses. Still other times 14 or 16-gauge steel strips are cut and filled in, and on very large and heavy skylights flat bars up to $\frac{3}{8}$ -inch thick are sometimes used, so the thickness of these core irons must be governed entirely by the size of the skylight.

United Sheet Metal Contractors of Chicago Progressing with Organization Work.

It was with considerably lighter heart that the staunch but few stand-patters of the United Sheet Metal Contractors of Chicago left the Hardware Club in the State and Lake building, Chicago, Wednesday night, April 2, after the semi-monthly meeting.

The meeting was not largely attended, but this was due more to the fact that the meeting cards were delayed in being sent out than to disinterestedness or a lack of desire to attend on the part of the members.

Considerable encouragement was taken from the fact that several new members put in an appearance at the meeting.

The meeting was practically given over to the work of organization. Although the details of this work have not yet been thoroughly whipped into a presentable shape, something substantial in the way of a plan will be unfolded to the members at the next meeting, which occurs April 16th.

A surprise is promised and it behooves every member, prospective as well, to be on hand early, in order to start the ball rolling.

Zinc Roofs Can Be Laid at Fair Price with Good Profit to Sheet Metal Contractor.

Brannin Points Out Many Opportunities for Increased Business for Man Who Will Use Zinc Roofing and Roofing Accessories.

AT THE annual convention of the Iowa Sheet Metal Contractors' Association, held in Fort Dodge, March 13th and 14th, D. F. Brannin, of the Mineral Point Zinc Company, a subsidiary of the New Jersey Zinc Company, spoke on Zinc, Its Uses and Manner of Application.

Mr. Brannin's address will help to clear up much of the unjustified distrust of and disinclination on the part of house owners and sheet metal contractors to use zinc for roofing and kindred purposes, and we are glad to give it further publicity through the columns of AMERICAN ARTISAN, as follows:

Mr. Brannin's Address.

It was just about 125 years ago that zinc was first used for roofing in Belgium. In 1811, to be exact, a Belgian priest used rolled zinc on part of the roof of the Church of St. Barthelemy at Liege, Belgium. During the same year a small house at Liege, Belgium, was also roofed with zinc. An examination of these two roofs made in 1900 showed them to be still in good condition.

The use of zinc for roofing and sheet metal work rapidly spread from Belgium to France, Austria, Germany, England and the Scandinavian countries, where it is now very largely used in preference to other metals, because of its lightness in weight, low cost and durability.

At the beginning of the European war in 1914, about 100,000 tons of sheet zinc annually were going into roofing and roofing accessories in Europe. This is a large tonnage when you consider that there is not the new construction in Europe proportionately that there is in the United States, for the reason that houses in Europe are lived in for many successive generations. Children live in the same houses in which their great-grandfathers lived, under the same zinc roofs.

Hundreds of public buildings all over Europe are covered with zinc. Among the most prominent of these buildings are:

The City Hall at Paris.

The North Station at Brussels.

The Ex-Kaiser's palace at Potsdam.

The Berlin Academy of Fine Arts.

The Haymarket Theater in London.

Canterbury Cathedral.

Government dock yards in England.

Zinc is used extensively on railway stations and train sheds, and an examination recently made shows that few or no repairs have been necessary to zinc roofs on train sheds, though some of these roofs have been giving service for over 50 years.

Now, I know that Europe is a long way off, and most of us prefer to have little interest in what is done in Europe; nevertheless, we can learn some very valuable lessons from them, and we do know that they are people who as a class want to get their money's worth.

Many Zinc Roofs in United States.

Every little while a building with a zinc roof and zinc sheet metal work in this country is called to our attention. Recently we found a rolled batten zinc roof on a house at 48 Grymes Hill, Staten Island. This was in excellent condition after 76 years of service. A standing seam zinc roof at Midway, Pennsylvania, within 50 feet of the Pennsylvania Railroad, and within 500 feet of a burning pile of the Pittsburgh Coal Company, was put up in 1870. It is in good condition, though subjected continuously to sulphurous fumes. The building is owned by the railroad company, and a foreman who lives there says the roof has never been repaired in 24 years.

A batten type zinc roof at Jamesport, New York, has been found within the last few weeks. This roof has been on the building for over 65 years and was still in excellent condition up to the time we removed a section of it for examination. A part of this section is being passed among you for examination.

There are many zinc roofs in Quebec. There is a zinc roof on the court house at San Diego, California, and some 40 years ago, when the Frenchman De Lesseps attempted to build a canal across Central America, he roofed a number of houses there with zinc. The project was later abandoned, the locomotives, dredges, steam shovels and all equipment were left on the ground. Of all this mass of metal left when the project was abandoned, nothing remains today but the zinc roofs. My point is to show that zinc is not affected by climatic conditions and can be successfully used in the tropics as well as in an extremely cold climate.

Atmospheric Conditions Do Not Hurt Zinc.

After zinc has been up a few weeks, a white coating forms upon it. This is known as basic carbonate of zinc. Once this coating is formed, it protects the underlying metal from further deterioration. This protective coating is one of the most valuable features of zinc, since no artificial covering is required to make it lasting. Zinc cannot rust; it needs no paint to make it lasting; it will not discolor white or light colored building surfaces; it is good to look at; it is fireproof and when properly grounded is lightning-proof as well, and above all, is extremely durable.

The question arises in your mind, that if all these things are true, why has not zinc been used in this country more extensively?

Those of you who have tried to form up sheet zinc in your brake have found that care must be used in forming it and that unless you worked it a certain way it was very likely to crack. In Europe this has not held back the use of zinc for roofing and sheet metal work, since

spouting, eaves troughs and elbows are almost entirely made by hand. Regardless of the more costly manufacturing methods, Europeans have continued to make up their pipe by soldering the seams and to make up their elbows in small sections. In America the prohibitive labor cost would not permit of such procedure. Here we must have conductor pipe machine-made and lock-seamed in the regular 10-foot sections. Our elbows are also made by machinery, and until we had a metal in this country with which we could work without danger of cracking, very little had been done to promote the use of zinc conductor pipe, elbows and trough.

Brand of Zinc That Does Not Crack.

About six years ago the New Jersey Zinc Company placed on the market a grade of rolled zinc known as "Horse Head" rolled zinc. This grade of rolled zinc is made from "Horse Head" slab zinc, which has been produced for over 75 years from the ore of the Franklin mine at Franklin, New Jersey. It is the purest zinc produced, averaging better than 99.9 per cent pure, and is free from the usual impurities which make zinc brittle and which impurities, once they are present in the ores, cannot be removed without prohibitive costs. "Horse Head" zinc, being pure, is ductile and is as easily worked as soft steel or copper. It can be seamed either with or against the grain without danger of fracture. This brand of zinc will not crack.

Now with the advent of "Horse Head" rolled zinc, which is produced in strips up to 20 inches in width, great progress has been made in the use of zinc for roofing, and especially for conductor pipe, eaves trough and spouting, all of which now can be cheaply made with automatic machinery, a thing which could not be done before this pure zinc was placed on the market. "Horse Head" pure rolled zinc is a reasonably low-priced metal and provides the contractor with a product which he can sell to his customers who want something better. It costs only about half as much as copper

and only slightly more than the better grades of galvanized steel of corresponding thickness.

Conductor pipe, eaves trough, ridge roll, valleys and flashings are made of 11-gauge zinc, which is .024 inches thick and corresponds approximately to 24-gauge steel, or to 16-ounce copper. It weighs 9 of a pound per square foot and is, therefore, about 10 per cent lighter in weight than galvanized steel of the same thickness. Copper of the same thickness weighs nearly 22 per cent more.

If you believe the thin coating of about .001 inch of zinc on a galvanized sheet is a protective measure, you certainly will agree that pure zinc twenty-four times thicker affords greater protection.

Simple Rules for Application.

Zinc is not difficult to install. A few simple rules should be observed in applying it and when these are followed a life time job results.

Briefly: Handle zinc as you would handle soft copper and remember to provide amply for contraction and expansion. Use slip joint gutter and pipe connections, so that all joints will have end play.

Use crimped zinc for box and O. G. gutters, and put in your expansion joints as you would with soft copper. Where your gutter extends up on the roof, clip it to the roof.

Keep the zinc out of contact with other metals, but where contact is necessary, a little paint or roofing cement is a good insulating medium. This applies particularly to where the conductor pipe discharges into a cast iron soil pipe.

Use gutter hangers that go round the gutter and hold it up from the under side. Use galvanized iron straps to hold up box and O. G. gutters. If you do not like a strap up over the face of the gutter, see that the gutters are held in at the top with galvanized straps and then when the pitch of the gutter is determined, run a piece of moulding or quarter-round along the fascia board under the back edge of the gutter for support. This is an important point in installing zinc, for

as the metal is soft it should always be held up. Place gutter hangers not further apart than two feet, and not more than eight inches from the ends or mitres.

Clip your valleys to the roof. The nails holding shingles or other roofing material should not pass through the valley.

Flashing on masonry, concrete or stucco should be given a coating of asphalt paint, and should be laid on a good grade of sheathing paper. The reglet in which the cap flashing is inserted should be pointed up with neat cement. Avoid the use of lime mortar.

Zinc leaders, gutters, elbows and flashings are not recommended on buildings which are roofed with red cedar or redwood shingles.

While zinc needs no painting to make it lasting, it may be painted if desired; a solution of copper acetate or copper sulphate will roughen up the metal so that paint will adhere.

In soldering, use a moderately hot iron and use cut acid. Wipe up the excess acid when finished. "Half and Half" solder is best.

For roofing you have a choice of standing seam "Horse Head" zinc roofing, an old style roofing in a new, easily worked, durable metal. You have the batten type roofing and you have "Horse Head" zinc shingles in a variety of designs.

"Horse Head" pure rolled zinc is mined, smelted and rolled by the New Jersey Zinc Company, and "Horse Head" conductor pipes, eaves troughs, elbows, shingles, valleys and ridges are manufactured by the most reputable sheet metal manufacturers in the business.

After it is all said and done, the things which are fundamentally sound are the things upon which successful business, satisfied customers and a good reputation are founded. When these things are secured, substantial profits follow.

In pure rolled zinc you have an addition to your present business which is fundamentally sound, and which will help maintain your reputation for quality. It offers an opportunity to you of getting back

some of the metal roofing business which you formerly had, but which is now largely in the hands of the carpenter, the lumber yard and the "Jack of all trades." No paper roof was ever as good as a good metal roof, and no metal roof could be better than a good standing seam zinc roofing.

Use it this spring and you will be pleased with it. Go after all kinds of construction, particularly churches, schools, factories and the better class of residences, for new work and replacement. Your customers will readily pay the slight difference in cost when you tell them what they are going to get for the difference they pay. They are tired of using materials which rust out in from three to five years, and the fact that these materials do not last does not help you, because the consumer is more likely to blame

the contractor for poor material than he is to blame the material itself. Remember, price is soon forgotten.

Pure rolled zinc will help to do away with the dull season. Be known as the man in your town who handles and installs it. Your customers are going to buy the material you recommend. They look upon you as an expert in your line and depend upon your advice and opinion on roofing and sheet metal problems. Tell them that in pure rolled zinc the first cost is the only cost. It involves no repairs, it will not rust, it will not stain; it is fireproof and when properly grounded is lightning-proof as well. It is easy to install and it is good to look at.

Our attractive window and counter cards, together with literature which we are glad to furnish you, will help you to move it.

New Jersey Sheet Metal Contractors Hold Their Third Annual Meeting.

Another Young Organization Is Making Rapid Progress and Accomplishing Much Good for Its Members.

THE Third Annual Convention of the New Jersey Sheet Metal Contractors' Association was held at the Stacy Trent Hotel, Trenton, New Jersey, April 1st and 2nd, and drew a large attendance. Although but two years old, this association has made remarkable progress and its membership has steadily increased, five new members having been received at this Convention.

The address of welcome was made by John G. Gill, president of the Kiwanis Club and former president of the Chamber of Commerce. His discourse was exceptionally fine and he made everyone at the session feel that it was a big family gathering.

National Secretary Seabrook responded to the wonderful talk given by Mr. Gill and assured him that the Association was indebted to him for his presence at the meeting.

President Albert I. Rice reported that the Association has been built up in the past two years due to the

efforts of some few members who have made sacrifices, and it is his hope that the future will show the many advantages obtained from their membership. Membership in the Association is to build business, create good will and cooperation between employer and employee.

Secretary A. B. Friedberg gave a very interesting talk on the spirit and loyalty of the Association and said that it is now hitting on high. He surely is a live-wire.

Treasurer Charles A. Swain reported that the treasury was in a healthy condition with a good balance on hand. This alone shows that the Association is run on a business basis.

An open forum was declared by the President and many subjects of vital interest to the members discussed.

Lunch was served in the main dining room and all were anxious to get back for the afternoon session. Of course, there was the usual chat-

ting of old friends who feel that it is a part of their very life to attend regularly every convention.

Afternoon Session.

In the afternoon meeting the first speaker was National President J. A. Pierpont, Washington, D. C., whose talk was for the betterment of the Association. Cooperation and organization are absolutely essential in all associations and it should be considered an honor by every member when he is called upon to serve as an officer or on a committee; by refusing or declining you are shirking your duty; it should be the spirit and willingness of your every effort to make *your* association *the* association in the industry.

The Association protects you from an injustice and will fight for your rights when they are questioned by outsiders. In order to have a 100 per cent association, *every* member must give his support. If there are a few who are pulling against the Association, it cannot function properly. A chain is as strong as its weakest link.

In this world of ours we get nothing for nothing and it should not be a take all and give none; the old saying of 50-50 applies particularly to associations. Give your brother member the benefit of your experience and bring your own difficulties before the meeting and you will go away fully convinced of the value of your membership. Of course, there are many conditions that you alone can solve.

A tendency of many of the sheet metal contractors is to call themselves "Tinnners," but this word is no longer to be used.

You are a Sheet Metal Contractor and not a tinner.

The National President had good words to say of the salesmen who are always visiting the trade and who are strong for associations. They know that the association man is progressive and that they do not have to look up his rating. The salesmen have done great work in getting new members for the various associations and nothing too good can be said of them.

In closing, the National President expressed the hope that all those who could possibly do so would attend the National Convention in Washington, D. C., June 17 to 20.

The next speaker was R. L. McHale, of David Lupton Sons Company, on the subject of "Simplifying of Sheet Metal Products."

He told of the many types and sizes that were carried by his company and asked that the associations get together and solve this great problem. What his company and other sheet metal manufacturers were trying to do was to eliminate bastard sizes and types and carry a full line of standard types and sizes. This also applied to the many gauges of metal that are ordered by the sheet metal contractor and it was his belief that a gauge of 28 should be the lightest. Mr. McHale went into detail and told of the vast store houses that was required to keep in stock the many articles that were listed at the present time. The standardization of articles will have a tendency to lower cost and will bring about many other great benefits to the sheet metal industry.

D. M. Strickland, of the American Rolling Mill Company, gave an interesting talk on "Why Metals Go Bad." He told the sheet metal contractors of the errors that happen in the manufacture of metals and how they occurred, as well as what was being done to overcome them. He touched on every phase of the metal, from its raw state to the finished product.

Mr. Strickland displayed charts that showed at a glance the many angles that have to be taken into consideration when metals are used.

The speaker in his discourse went back to pre-historic days and told how the metals were first discovered.

Those in attendance were sorry when his talk came to a close, for every word uttered by him was like giving dollars away—this was a case of getting something for nothing. President Rice expressed the appreciation of the Association for the splendid talk and hoped that he would honor them with another talk

at one of their subsequent meetings.

F. D. Potter, Secretary of the Manufacturers' Association of New Jersey, gave a talk on "Reducing Compensation Premiums." He told how the State of New Jersey was the first state in the Union to adopt the Workingmen's Compensation Act and the good that the Association is doing in bringing the employer and the manufacturer together.

The Banquet.

The toastmaster at the banquet was National Secretary Edwin L. Seabrook, and he performed his duty ably. The principal speaker was the Reverend Gil Robb Wilson, who is a born orator and who kept the attention of the large gathering every minute. He talked of the cooperation that was needed in every walk of life, whether it be social or business.

Edwin A. Scott, publisher of the *Sheet Metal Worker*, was next called on. He spoke of the great work being done at the vocational school in Buffalo and urged all to give their support to the schooling of young men for the sheet metal industry. He was surprised to see that so many of those engaged in the industry still termed themselves as *Tinnners* and hoped that it would soon be a thing of the past.

The next speaker was William S. Stephenson, of the American Rolling Mill Company, who spoke of the many advantages to be obtained from being an association member.

Morning Session, April 2nd.

The subject given B. M. Crall of Collingswood, New Jersey, was just his pie and he surely did justice to the subject of "The Future of Warm Air Furnace Heating."

Some of the principles that were brought out by him were:

1. Guesswork on the part of many sheet metal contractors in installing furnaces.

2. The unscrupulous builder who did not care whether or not a furnace would heat a house properly or not but who decided on a price for a furnace and would pay no more.

To a certain degree the manufacturer, he said, was to blame for

slow progress which is due to improper installing. The future of the warm air furnace depends entirely on the proper furnace and the proper installation.

He asked those who attended to drop the use of *hot* air and to give it its proper name—*warm* air. He said that too many in the trade will not follow or read their trade papers. If they would devote a little time in the reading of their trade journals they would learn many many things that would be invaluable to them.

He said that the man who is satisfied to run his business just to get a living from it has no right to be called a business man; a man's aim should be to succeed, for success is not entirely in a financial way, but also for posterity. Learn all you can and then you will not know half enough. He has yet to find a man who "knows it all."

G. Whitehead said that some of those engaged in the business were business cowards—afraid to get after the man who made a poor installation.

Secretary A. B. Friedberg gave a snappy talk on how to run your business. Some of those engaged in the industry did not know how they stood, only from their cash and bank book. Did not know how much things cost and simply knew that they were not losing money.

The three fundamentals are: Estimating, buying, erecting. When you know these you have a pretty good idea just how you stand. In our subsequent issues Mr. Friedberg will outline how the business should be run on a system that is now in force in many of the better sheet metal shops.

The Association is desirous to have all the salesmen covering the state of New Jersey join and a drive will be made not only to get an Auxiliary started but to increase the membership of their State Association 100 per cent. Many of the sheet metal contractors throughout the state will be visited and it is hoped that they will see the advisability of becoming a member. As one of the speakers said in his talk,

you can tell a progressive business man by the fact that he belongs to his trade association, both local and national, and reads his trade papers.

The Resolutions Committee submitted its report which included an expression of thanks to National President Pierpont, Reverend Wilson, Messrs. Strickland, McHale, Potter and Crall for the great services they had rendered to the Association; also to the management of the Hotel Stacy Trent for the many courtesies extended to the members; to the family and associates of the late Frank K. Chew a letter of regret and sympathy; a letter of thanks to the American Rolling Mill Company and David Lupton Sons Company for their courtesy in sending their representatives to the convention, and to all those who have in any way contributed to the suc-

cess of the convention. Acknowledgment was made to the American Rolling Mill Company for the programs that were furnished by them.

Officers elected for the year 1924-5 are as follows:

President, Albert W. Lindholm, Passaic.

Vice-president, A. B. Friedberg, New Brunswick.

Treasurer, Charles A. Swain, Cape May.

Secretary, W. G. Schrack, Camden.

Directors for three years: Jessie Brown and Albert I. Rice.

Director for two years: Howard Moore.

It was decided that the next convention place be left in the hands of the directors to decide, and it looks as if Atlantic City or Newark will be selected.

Allen of South Dakota Says Frye's Method of Figuring Circles is Too Slow and Cumbersome.

Consults Old Father Time, Who Merely Re-Assures Him That Boys Must Have Their Fling.

"TRUTH crushed to earth shall rise again"—

The eternal days of God are hers;
But error, wounded, writhes in pain,
And dies among his worshippers."

So runs that well known little "squib" of William Cullan Bryant, and its quotation is particularly fitting at this time, thinks A. A. Allen, of Aberdeen, South Dakota, in reply to Harry Frye and his circuitous tendencies.

Well, friend Harry, you have one on me. Just like the Hun had it on the buddy, who placed his hat on his bayonet and raised it above the trench. The hat got shot. Buddy didn't. But he located the Hun. I thought you might explode.

As I am interested in your problem, I will work it by old Father Time's method, so that you can see that it is limited to just three circles. The remainder are fakes.

Father Time says you should draw a base line and mark off from X the 1½", 2", 2½" and 3" diameters. He then stopped here to tell

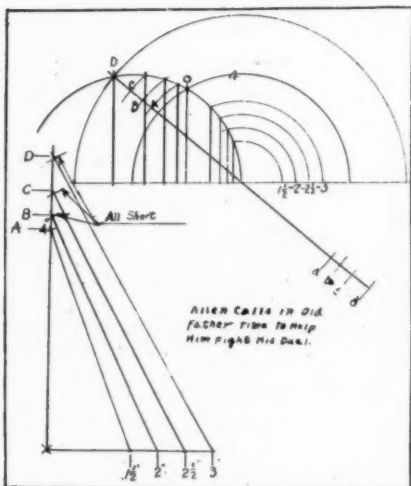
me that this method was called triangulation, or something like that. And then he said you should erect a perpendicular line at X quite high. From X mark off the 4" diameter and call it A. Then set one point of the dividers on the 4" mark at A and the other on the 1½" mark. The dividers are now set at the exact diameter of the circle which equals the area of the 4" and 1½" circle.

Then he said you should leave the dividers as they are and set one point on X and circumscribe B. Then set one point on B and the other on the 2" mark. Then set one point at X and circumscribe C; then set one point on C and the other on the 2½" mark. Then set one point on X and circumscribe D. He didn't tell me to do this next, but I did it when he wasn't looking. Draw a line from D to the 3" and from C to 2½", and then from B to 2", then from A to 1½".

He afterwards told me that these were progressive diameters and of

the exact size. He got mad when I showed him our problem, and told me to go and work it out myself. He said it would take three times as long to draw the thing, and even after it was drawn, it wouldn't be right.

So I drew it as before, with a few additions in heavier lines. From the spacings on the base line I have drawn perpendicular lines that intersect the second circle. I then drew a line from D through the axis of the first circle. On this line I transferred the three points of intersection of circle one, and marked



Allen Uses Father Time's Method and Limits Problem to Three Circles.

them Aa, Bb, Cc, Dd. (A lot of work for nothing.) These are the progressive diameters.

Now place one point of your dividers on A and the other on "a". You will then find that the divider will just fit the 4"-1½ diameter of grandpap's old thing. B-B in your problem is a little short of B-2" in grandpap's. C-c is still shorter and D-d is quite a bit too short.

Now you can blow up again, but I think it is an awful sin to let your fleeting soul pass through so many fires.

An Expression.

Old Father Time has stood the test, He knows the things that boys like best.

He likes to have them show
How his things ought to go.
When they are wrong, but still believe,
His fixed rules bring them relief.

He laughs with them at their mistakes—

At their toys and—yes, their fakes.
That's what makes boys, and no mistake,

He likes to see them wide awake.
But boys will be boys, they like to shirk,

It's much easier when George does the work.

They like to sing their song with glee,

About the things they think and see
And say. But oh, shucks! there isn't any fun

In finishing the thing that they've begun.

Yours truly,

A. A. ALLEN.

Aberdeen, South Dakota.

E. L. Fink Finds Method of Relining Reisinger's Wooden Tank.

In the March 15th issue of AMERICAN ARTISAN, M. Reisinger, —, Wisconsin, asked how a tank having a 16-ounce rolled copper lining tinned on one side can be repaired. All the seams are locked and heavily soldered.

E. L. Fink, Patterson, California, makes the following recommendation:

TO AMERICAN ARTISAN:

In reply to Mr. Reisinger's question on how to stop leaks in a round wooden tank lined with copper, I should suggest that he try giving it a good coat of Petro-Elastic cement XX.

The tank must first be cleaned and absolutely dry, and the Petro-Elastic cement must be used boiling hot, as it then brushes on easier.

Our establishment coats all new water tanks from 1,000 to 5,000 gallons inside with this cement or tar, as well as repair old tanks the same way. We have done this for the past ten years and have never had them leak after they received this treatment.

If Mr. Reisinger is not familiar with this tar, I might add, for his information, that the water will not taste of the tar or the preparation. frequently forgotten. There are a

great many reasons for the spring sale of housewares and every year they should be studied afresh—and each time new sources of profit will be discovered.

Yours truly,

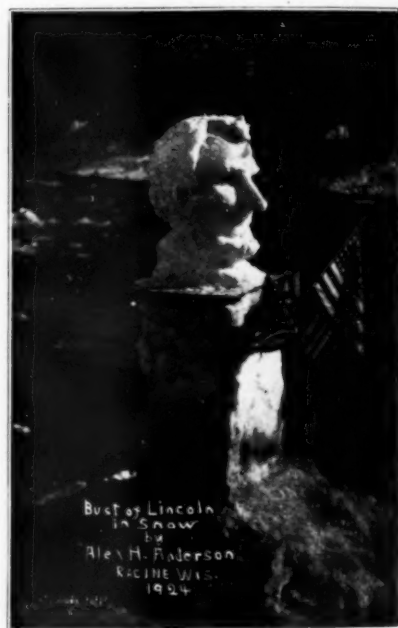
E. L. FINK.

Patterson, California.

Artistic Ability Not Confined to Old World Leaders—To Wit: Lincoln Bust in Snow.

The French people have always been noted for their artistic ability; nor have they been negligent in their contributions to literature. Hugo, Balzac, Dumas are three outstanding French literary lights.

The Italians, on the other hand, are the world's sculptors. The great Italian leaders in the art of marble



Bust of Great Emancipator Done in Snow by Alex. H. Anderson, Racine, Wisconsin.

cutting are so well known that their names are by-words in every family. Artistic talent and even genius are not lacking in Americans, however, in addition their far-famed inventive faculties. So prolific are the American artistic tendencies that nature pushes her ramifications into every walk of life, and it is well and truly said that the only reason why Americans have not long ago taken their place at the side of the leaders in the Arts of the Old World is that

they are too busy making money, rather than due to a lack of ability.

The accompanying illustration is just one of the many examples of artistic ability cropping out in the odd leisure moments of men in our own industry.

So thoroughly is the image of the Great Emancipator embedded in the memory of the nation that productions of the type shown are forever presenting themselves on the anniversary of the birth of Abraham Lincoln, 1809 to 1865.

The bust in snow was made by Alex. H. Anderson, of Racine, Wisconsin. It is an excellent representation and we must commend Mr. Anderson for it.

Chicago Sheet Metal Contractors Agree on Apprentice Wages.

At a recent meeting of the Sheet Metal Contractors' Association of Chicago, states President Harry C. Knisely, the subject of apprentices' wages was discussed and, so that uniformity of wages might prevail, the motion was duly carried that the following wages be considered fair for apprentices and that the Association recommends to its members that wages be paid accordingly, effective at once:

	Per week.
First six months.....	\$15.00
Second six months.....	18.00
Third six months.....	21.00
Fourth six months.....	24.00
Fifth six months.....	27.00
Sixth six months.....	30.00
Seventh six months.....	33.00
Eighth six months.....	36.00

President Knisely also informs us that Secretary Haines is at present enjoying the balmy breezes of Florida.

The more rapidly stock is turned the smaller the investment required and the easier the business can be financed. Borrowing can be curtailed, interest saved and case discounts more easily taken. The released capital can be used to add new lines, more complete assortments, or for other investment.

Indianapolis Sheet Metal Wage and Working Agreement for 1924 Settled.

The wage and working agreement of the sheet metal workers of Indianapolis, Indiana, was settled March 31st. The wage agreed upon for 1924 is to be \$1.05 per hour. This is the announcement of Joseph C. Gardner, the newly elected president of Indiana Sheet Metal Contractors' Association.

Notes and Queries

"Lee" Ventilator.

From J. C. Allen, Rockford, Illinois.

I should like to know who makes the "Lee" ventilator?

Ans.—Thomas Lee, 129 West 2nd Street, Cincinnati, Ohio.

Repairs for "Lennox" Punch.

From W. J. McPherson, Walnut Creek Plumbing and Supply Company, Walnut Creek, California.

Kindly tell us where the Lennox Machine Company, makers of the "Lennox" punch, is located, as we want repairs for the punch.

Ans.—This concern is now out of business, but you can secure repairs from Joseph T. Ryerson and Son, 2558 West 16th Street, Chicago, Illinois.

Row Boat Patterns: "Brooks" Patterns.

From Hoquiam Sheet Metal Works, 200 Eighth Street, Hoquiam, Washington.

Who makes patterns for metal row boats? Also, who makes the "Brooks" patterns?

Ans.—1. H. F. Thompson Boat and Pattern Works, Decorah, Iowa. 2. Brooks Manufacturing Company, Saginaw, Michigan.

Bronze Name Plates.

From Faust Motor Company, Comfort, Texas.

We should like to know who makes bronze name plates for heaters and furnaces?

Ans.—Etching Company of America, 1520 Montana Street, Chicago, Illinois; General Etching and Manufacturing Company, 314 South Hamilton Street, Chicago, Illinois; Turner Brass Works, Sycamore, Illinois; Fred J. Meyers Manufacturing Company, Hamilton,

Ohio, and Wood-Detroit Manufacturing Company, Marquette Building, Detroit, Michigan.

Stove Leg Rests.

From William F. Habicht, 60 North Second Street, Philadelphia, Pennsylvania.

Will you please advise me who makes clay or porcelain stove leg rests.

Ans.—Jennison Manufacturing Company, Fitchburg, Massachusetts; Empire China Works, 156 Greene Street, Brooklyn, New York, and Onward Manufacturing Company, Menasha, Wisconsin.

Oxidized Copper Moldings.

From National Heating and Sheet Metal Works, 121 West Front Street, Muscatine, Iowa.

Who makes small oxidized copper moldings?

Ans.—The Milwaukee Corrugating Company, Milwaukee, Wisconsin, and The Kawneer Company, Niles, Michigan.

"Minnemeyer" Brass Conductor Hooks.

From The National Cornice Company, 225-229 South Union Street, Lima, Ohio.

Can you tell us who makes the "Minnemeyer" brass conductor fasteners?

Ans.—Clark - Smith Hardware Company, Peoria, Illinois.

Metal Folder.

From George Mirlach, 614 West Maple Avenue, Beaver Dam, Wisconsin.

Kindly inform me who makes a 30-inch metal folder.

Ans.—The Peck, Stow and Wilcox Company, Southington, Connecticut.

"Cornwell" Tools.

From John Maier and Company, 1640-42 Chicago Road, Chicago Heights, Illinois.

Do you know the name of the firm who makes tools with the name of "Cornwell" stamped on them?

Ans.—This is the Cornwell Quality Tools Company, Cuyahoga Falls, Ohio.

Outside Gas Light.

From The Lawrence Henry Furnace Company, 137 West Third Street, Uhrichsville, Ohio.

Can you tell us who makes an outside gas light that will not blow out and having a globe that will not crack from the rain.

Ans.—General Gas Light Company, Kalamazoo, Michigan.

Sporting Goods Displays Must Represent Action to Attract the Greatest Attention.

Here's How a Kankakee Hardware Store Put Action Into a Baseball Goods Window Display.

WRITING is nothing if it does not carry the emotional appeal of the writer. The same is true of a window display, and makers of window displays should guard against the possibility of presenting a window to their patrons which does not carry a lively note of interest. This is especially true with subjects such as sporting goods, where lively action is implied.

Baird-Swannell, Incorporated, 286-298 East Court Street, Kanka-

and out of window from the store.

The floor was covered with sheet moss (natural) to represent grass, and sand for base lines. Home plate was cut out of wall board and painted white.

The figure of a catcher was painted on the wall board, also the figure of a batter, and placed them in their respective places on the diamond. We suspended a baseball on a wire from the ceiling to hang down in front of the batter, so that

prospect, but they stimulate the mind and assist in putting over the idea presented.

Golden brown toast piled high on a plate will do more to help sell a toaster than a lot of "sales argument." The economy of electrical appliances can be pictured.

With the use of such pictures some apt slogans can be utilized. The selling value of such slogans as "Let the Gold Dust Twins Do Your Work," "Good to the Last Drop,"



Baird-Swannell, Incorporated, 286-298 East Court Street, Kankakee, Illinois, Introduce Sporting Goods with a Zest and Snap of a Peculiarly Attractive Nature.

kee, Illinois, has been particularly successful in this respect, as the accompanying illustration will attest.

Z. Buckler is responsible for the design, and the Powell Studio, 125 South Dearborn Avenue, Kankakee, Illinois, photographed the display.

A description is as follows:

The background was made of wall board to represent a board fence and billboard. The fence was painted white, with stripes of black to get the board effect. The billboard background was painted yellow, with black lettering. The gate was made at one end of background, size 4x6 feet, and swung on hinges so as to enable a person to get in

it would look as if it was being thrown from the pitcher's box, painted wire so that it was same color as billboard. We placed uniforms, bats, catchers' mitts, masks, baseballs, grab mitts, etc., in different places on the floor. The idea for placing these on floor covering was to avoid spoiling the effects of the city lot. There was also painted a scoreboard on the fence in right-hand corner.

What the Illustration Does to Prospect's Imagination.

It is a fact that illustrations not only help to hold the interest of a

"Gifts of Utility," can never be computed.

Slogans and pictures will show the time saving, labor saving elements and the thorough satisfaction of the devices.

Don't be afraid to hire a green, inexperienced clerk, but fight shy of the stupid one, no matter how many years of experience he has had.

Speed is the result of greed. Don't be afraid to take time to do a thing well. There are a few people left who like quality. And quality buyers stick like leeches to quality producers.

Advent of April Compels Dealers to Concentrate on Seasonable Lines.

Window Displays and Advertising Must Anticipate Demand Instead of Running Concurrently.

WITH the arrival of April, the hardware dealer's problem as to the most suitable lines to display is easily solved. Between seasons there is naturally some divergence of opinion as to the class of goods most likely to tempt the consumer. Some hardware dealers prefer general assorted displays, others believe in specialization, and so on. But with the advent of a new season this difficulty ends.

In April the dealer should start by featuring his housecleaning lines. Although housecleaning may not start until the latter part of the month, depending largely on the weather, *the secret of successful advertising is to make the window displays anticipate the demand, instead of putting them on concurrently.*

By his displays, the merchant warns consumers that before long storm windows must be taken down, furnaces and heaters allowed to cool, and the house thrown open to the genial spring weather.

As a result of that warning, the housewife goes home, looks through her stock of housecleaning utensils, and finds out just what she needs—and she naturally thinks first of the hardware dealer who opened the subject; of the one who constantly reminds her of it through advertising.

In preparing her list thus in advance, the housewife is inclined to be more liberal in estimating her wants than if the housecleaning had caught her unprepared. In the latter case old scrubbing brushes, brooms and pails would probably be made to do service for another year. By delaying the window display, the appeal of new lines is lessened. It is up to the hardware dealer, by anticipating the demand, to give the housewife a chance to plan her spring housecleaning intelligently and comprehensively.

The dealer, then, will start with housecleaning equipment, giving prominence to any new line he may have and at the same time putting on a well assorted display. He might specialize by dividing these lines into two departments. That is to say, a housecleaning window proper, consisting of brushes of all kinds, wall dusters, window cleaners, stepladders, mops, pails, chamois, carpet sweepers and polishes, could be put on; to be followed later by a laundry window comprising washing machines, wringers, washboards, dippers, tubs, ironing boards, sleeve boards, irons of various kinds, clothes dryers, curtain stretchers, clothes lines, pulleys, reels and clothes pins.

At the same time the merchant should bear in mind the importance of the paint department. The cleaning up of the house will reveal the wear and tear of winter. Varnish, stains, enamels and paint will be wanted for various purposes.

The dealer by judicious window displays and an effective use of the color cards, hangers and posters supplied by the manufacturers, can influence the buying of a much greater quantity of paint and paint specialties than would otherwise be sold.

With the real break-up of the weather, the merchant can pay attention to his tool department. Carpentering and garden tools make very handsome displays. In the gardening windows green effects can be introduced which give the store an appropriate touch of spring. After the long spell of winter a window with a spring effect is irresistible. With artificial leaves and flowers, gardening tools can be displayed to the utmost advantage.

In all his displays the hardware dealer should not forget that the more attractive the display, the greater force he gives to the adver-

tising, not merely of the particular line featured, but of the whole store. By concentrating his energies on certain classes of goods he is by no means neglecting other lines.

Toward the end of the month the merchant can give attention to sporting goods. The various athletic organizations will be busy making preparations for the season. Outfits will be wanted, and the dealer who is ready for the demand will secure the trade. *The sporting enthusiast is usually in a hurry to get his new bat, mitts, or whatever it may be, and he does not like to be told that certain lines are not yet in stock, and that he must wait if he wants to get them at that particular store.* He probably does not wait, but goes to another hardware dealer who has been more foresighted in ordering. It is the man with the goods, not the man who has them on order, who gets the sporting goods trade.

Panhandle Hardware and Implement Men to Convene at Amarillo, Texas, May 12 to 14.

The following program of the Fifteenth Annual Convention of the Panhandle Hardware & Implement Association will be held May 12 to 14 at the Hotel Amarillo, Amarillo, Texas.

Monday Morning.

10:30—Call to order by President H. B. Thompson.

Song, "America."

Invocation, Rev. R. Thomsen.

President's annual address.

Organization of Question Box.

2:00 p. m.—Question box.

Address, "Development of the Poultry and Dairying Industries as Related to the Hardware Dealer."

Discussion, J. T. Crawford, Pampa, Texas.

Address, "The National Federation Implement Dealers' Association and Its Relation to Its Affiliated Associations," H. J. Hodge, Abilene, Kansas, Secretary of the National Federation.

Announcements: 7:30 Monday evening a night session will be held.

Tuesday Morning.

9:30—Song.

Address, "How Can I Convert My Bunch of 'Order Takers' Into a Sales Force?" S. H. Mitchell, Denver, Colorado.

Discussion.

Address, "Organization," Hamp Williams, Hot Springs, Arkansas, President of the National Retail Hardware Association.

2:00 p. m.—Song.

Question box, which will be devoted entirely to the cotton industry, H. E. Williams, Lamesa, Texas.

Address, "Insurance," D. D. Fox, Dallas, Texas, Southern Agent for the Federal Hardware and Implement Underwriters.

Address, "The Trenton Idea and Its Application for Business Building," Tom N. Witten, Trenton, Mis-

souri, President of the National Federation.

Discussion, S. T. Harrison, Memphis, Texas.

8:00 p. m.—Banquet given by the PHIT Club; Ray C. Johnson, master of ceremonies.

The guests will be entertained by the High School Orchestra and numerous singers.

Wednesday Morning.

Singing.

Secretary's report.

Reports of committees.

Election of officers.

General discussion of subjects unfinished during convention program.

11:30—Trip through the United States Zinc smelter.

The remainder of the afternoon will be spent in visiting salesmen, local jobbers, and friends.

Hardware Men Must Study Methods of Combating Chain Store Competition, Says McGill.

Tells Michigan Retailers at Grand Rapids, February 12 to 15, That Business Outlook for Coming Six Months Is Good.

QUESTIONS pertaining to the business outlook for 1924 and also of the chain store competition are hereinafter discussed by H. M. McGill, of the Babson Statistical Organization.

The address was delivered by Mr. McGill before the members of the Michigan Retail Hardware Association in convention at Grand Rapids.

Business Outlook for 1924.

Every man in business is at the present time speculating as to the probable developments in the business trend throughout 1924. We have found in our experience that while 100 per cent accuracy in forecasting can never be obtained, the best results are maintained through strict adherence to sound fundamental policies.

To answer specifically the outstanding question that confronts every business man—the Babson organization anticipates good business at least through the first six months of 1924. Moreover, commodity prices should average somewhat higher during that period.

Defining Business.

Someone might ask, what is business? and a brief definition is the production, distribution and consumption of goods, involving transportation, fuel, labor and a medium of exchange. Production is necessarily divided into three groups: (1) industrial, (2) agricultural, and (3) international. Consequently, every effort

was concentrated on stimulating producing capacity, and as a result the termination of the war found our producing capacity of industrial commodities far in excess of our ability to consume and export.

We might take any line of industry to illustrate this point. For convenience take one of the leading industries in this country—steel. The actual output in 1913 was 30,000,000 tons, with the producing capacity around 32,000,000 tons. Last year the output was around 43,000,000 tons, but the main point is, if this country was called upon we could produce steel in the vicinity of 54,000,000 to 56,000,000 tons annually. This is only indicative of the general run of industry.

The same is true of agriculture. Europe does not need the same amount of foodstuffs that was required several years ago. For example, in 1923 the exports of wheat were only 98,000,000 bushels. In 1922 the volume was 164,000,000; in 1921, 280,000,000, and in 1920, 218,000,000 bushels, while the 1913 level was 99,000,000 bushels.

What Bearing Imports Have on Situation.

The third phase on the question of supply is imports. During the calendar year 1923 our favorable balance of trade was \$375,000,000. This is remarkable when it is realized that during the first six months the balance sheet showed a deficit. However, the figure compares with 709,000,000 in 1922, \$1,967,000,000 in 1921, \$2,950,000,000 in 1920, and 4,000,000,000 in 1919. The pre-war favorable balance of trade in 1913 was \$500,-

000,000. It is, therefore, seen that European competition is keen and has not only reduced our favorable balance of trade to an alarmingly low figure, but is even less than pre-war proportions.

Where We Stand in the Way of Fuel.

Fuel statistics are also enlightening. A year ago there was a shortage and prices were high, a result of the drastic coal strike in 1922. However, last year production month by month climbed up, reaching a total of 545,000,000 tons or 123,000,000 tons over the previous year. We have produced more coal than was necessary to meet industrial demands. Consequently, prices at the mines have steadily declined and stocks of coal are probably as large as at any time in modern history. There is one factor in the present situation that is alarming; namely, the possible strike this year.

The labor situation is also more favorable. Early last year, with business sweeping upward, there was a cry of another labor shortage. However, the sudden break in the volume of business brought about unemployment and more efficiency. This year with no indication of any radical spurt in industrial activity, and with the aid of the foreign quota and labor-saving devices, there should be no labor shortage or abnormal difficulties. The most important point is that the upward swing in wages has about run its course.

Conflicting Elements in Demand.

On the demand side of the business situation we have certain conflicting elements. The principal buyers, of course, the industrial worker, the agricultural worker, foreign trade, building, the railroads and the Government. This same condition should exist throughout 1924.

The farmer, which is well-known, received the worst end of the bargain, when the smoke had cleared up from the crash of 1920. The study of a depression is most interesting. We have found that the chief characteristic is this—that a depression does not hit the country in blanket form. For example, as early as April or May, the reversal of conditions was felt in the East, but it was not until September or October that business men on the Pacific coast could truthfully say that they felt the effects of the depression. In the agricultural sections we are now in the period of convalescence. The farmer is coming back as a buyer—a factor well exemplified by sales of mail order houses throughout the past year.

In foreign trade we have a tremendous problem. Our foreign neighbors are buying only what they actually need, primarily because economic conditions will not permit otherwise. Restricted exports and relatively heavy imports are due chiefly to the fact that foreign countries owe our merchants and investors, not taking into consideration the \$11,000,000,000 war loan, between \$3-4,000,000,000.

Building has been one of the principal factors in maintaining a good business throughout 1923. A survey of present building conditions shows that the high rate of activity will continue well into the current year, but do not overlook the fact that a saturation point is not far distant and building, not only volume but prices, is facing an inevitable substantial contraction.

The railroads are also good buyers, reflecting good earnings of last year.

The automobile industry with its tremendous stimulation in production has

also played an important role in the marked recovery throughout the latter part of 1923, but here again, we have a situation that is not fundamentally sound and faces a readjustment. Taking building, the railroads and the automobile and Government buying for 1924, the early part of the year should hold up well, but a retrenchment during the closing months, bringing the total approximately 10 per cent under 1923 figures, is not unreasonable.

Chain Store Competition Requires Study.

There is one thought that I would like to advance in connection with the hardware business. Every retailer should be giving very close study to chain store competition. The history of the chain store has been as follows: When the idea was first proposed, it was ridiculed by the independent retailer and wholesaler. Several of the older concerns in Boston have told me that when the chain store first started they never dreamed that it would amount to anything.

There are certain reasons why the chains have as yet made relatively little headway in the hardware business. One reason is that the chain system thus far has had its greatest success in lines which can be handled in a rather mechanical way. Packaged and canned groceries, for example, can be handed out by clerks of limited ability.

For the above and doubtless other reasons as well, the independent retailer has thus far maintained an almost impregnable position in the hardware field. The point is that the hardware retailer should profit by the example of other lines of retailing and should not go to sleep on the easy assumption that just because he has been somewhat immune from chain competition thus far, that the present situation will continue always. The hardware retailer should study chain competition just as carefully as though his position were actually being assailed by the chain at the present moment. Then if the time does come when the chains have covered other fields of retailing and attempt an invasion of the hardware field, the independent dealer will have studied out the best ways of meeting the attack.

There is obviously no reason why the independent dealer should not be able to match the chain with respect to location, store front, window display, store layout, merchandise display, chain methods and advertising. In regard to the standing in the community, the independent already has a great advantage over the chain. In regard to local management the independent dealer also has great advantage over the chain. Speaking as an outside and unprejudiced third party, we believe that society has much to gain from a parallel development. Therefore we have been somewhat disturbed to notice that in the matter of buying, the chains apparently have an advantage that cannot be lightly overcome. It seems to us that perhaps one answer is that if the chain buys in large quantity the independent dealer must buy with superior skill.

Ideas are the leaven which make any business grow. A merchant who ceases to drink in new ideas is as sure to stagnate as a pond without an inlet.

Drifters and Time Servers Always Blame Successful Men for Their Own Failure.

Some people fail because they have not a clear-cut idea of just what their job is. They have drifted along from day to day and year to year. They do not see their way out of the blind alley in which they are situated, and so they do not see the glory of the opportunity which is theirs. They do the work of the day because they must eat and be clothed and housed—and that is about all it amounts to.

But someone else says to himself, "I will make every home in this community happier and its outlook wider because I will put that which is worth while within the reach of all"—that man gets rich. He is rich in happiness as well as cash. He has a vision of service and he carries it out. People know about him, because he is doing a big job and doing it in a man's way. But some of the very ones who envy him would not be willing to put the same effort, the same sacrifice and the same sincerity into their own tasks.

Coming Conventions

Spring Convention of American Hardware Manufacturers' Association, Roosevelt Hotel, New Orleans, Louisiana, April 8, 9, 10 and 11, 1924. Frederick D. Mitchell, Secretary-Treasurer, 1819 Broadway, New York City.

Annual Convention of Southern Hardware Jobbers' Association, April 8, 9, 10 and 11, 1924, at Roosevelt Hotel, New Orleans, Louisiana. John Donnan, Secretary-Treasurer, Room 821, American National Bank Building, Richmond, Virginia.

Old Guard Southern Hardware Salesmen's Association, April 9. Hotel Roosevelt, New Orleans. R. P. Boyd, Secretary, R. F. D. 4, Knoxville, Tennessee.

Illinois Sheet Metal Contractors' Association, Jefferson Hotel, Peoria, Illinois, April 9 and 10, 1924. Fred C. Gross, Secretary, 219 South Fifth Street, Quincy, Illinois.

National Warm Air Heating and Ventilating Association Convention, Hotel Winton, Cleveland, Ohio, April 16 and 17, 1924. Allen W. Williams, 52 West Gay Street, Columbus, Ohio, Secretary.

Missouri Sheet Metal Contractors' Association, Baltimore Hotel, Kansas City, Missouri, April 22 and 23, 1924. John B. Fehlig, Secretary, 528 Delaware Street, Kansas City, Missouri.

Metal Branch of National Hardware Association, Bellevue-Stratford Hotel, Philadelphia, May 9 and 10, 1924. W. H. Donlevy, Chairman, Philadelphia, Pennsylvania.

Panhandle Hardware and Implement Association, Amarillo Hotel, Amarillo, Texas, May 12, 13 and 14, 1924. C. L. Thompson, Secretary and Treasurer, Canyon, Texas.

National Association of Stove Manufacturers, Hotel Astor, New York City, May 14 and 15, 1924. Allen W. Williams, Temporary Secretary, 52 West Gay Street, Columbus, Ohio.

Southeastern Retail Hardware and Implement Association, composed of Alabama, Florida, Georgia and Tennessee. Convention and Exhibition, Atlanta, Georgia, May 27, 28, 29, 1924. Walter Harlan, Secretary, 701 Grand Theater Building, Atlanta.

National Retail Hardware Association Congress, San Francisco, California, June 16, 17, 18 and 19, 1924. Herbert P. Sheets, Secretary, Indianapolis, Indiana.

Hardware Association of the Carolinas Convention, Wrightsville Beach, North Carolina, June 17, 18, 19, 1924. T. W. Dixon, Secretary-Treasurer, 717-718 Commercial Bank Building, Charlotte, North Carolina.

Convention National Association of Sheet Metal Contractors of the United States, Raleigh Hotel, 12th and Pennsylvania Avenue, N. W., Washington, D. C., June 17, 18, 19 and 20. Edwin L. Seabrook, Secretary, 608 Chestnut Street, Philadelphia.

Michigan Sheet Metal and Roofing Contractors' Outing to Quebec, July 19 to 26, 1924. Frank E. Ederle, Secretary, 1121 Franklin Street, S. E., Grand Rapids, Michigan.

Ohio Sheet Metal Contractors' Association, Southern Hotel, Columbus, Ohio, July 22 to 24, 1924. George F. Mooney, Secretary, 213 First National Bank Building, Columbus, Ohio.

Pennsylvania & Atlantic Seaboard Hardware Association Convention and Exhibition, February 16 to 20, 1925, at Philadelphia Commercial Museum. Sharon E. Jones, Secretary.

Retail Hardware Doings

Arizona.

The Imperial Valley Hardware Company of Yuma has moved its stock and fixtures to its new store in the old Varney Building.

Illinois.

Supervisor Henry B. Eger of Libertyville has sold his hardware store at that place to his son, Frank.

Minnesota.

A. H. Andert has purchased the hardware store and stock formerly owned by Anton Maanum and T. A. Maanum at Alberta.

Missouri.

E. B. McCutchen has purchased a half interest in the Guy Long Hardware Store at Pilot Grove.

Ohio.

David Ogg has purchased the interest of Mr. Mitchell in the hardware store of Zeis and Mitchell at Upper Sandusky. The firm name hereafter will be Zeis and Ogg.

South Dakota.

Ed S. Uhrig, for many years an employee in the hardware store of Binder and Borst, Incorporated, Pierre, has purchased that stock and is now the individual owner.

Potter Stimulates Early Buying of Stoves with Unique Range Club.

Creates Interest in His Store with Well Designed Local News Paper Advertisement.

THE up and doing hardware or stove merchant takes the attitude that nothing is impossible to the man who wants to do something so long as it is within the pale of ethics and the law. They work on the basis that business is as good as you yourself make it. If business is slow, then it's up to you to get

out and hustle for it, and that is precisely what Potter was doing when he thought out and constructed accompanying reprinted advertisement taken from the *Portland (Maine) Telegram*.

Here is an advertisement that can not fail to stimulate interest and induce action.

Only **Members!**

Join Our Range Club

Coal
or
Wood
Gas
Electric
Ranges



A Complete Stock of
Parts and Accessories
Available
at a
Moment's
Notice

To stimulate early buying and to introduce the largest collection of Coal, Gas and Electric Ranges ever shown in Portland, we give 75 persons the opportunity to make selections from our entire stock of

Crawford and Magee Ranges

On Our Club Plan

In anticipation of the rush to secure the more desirable numbers, we warn you all to **ACT NOW — TODAY**. Tomorrow may be too late. It is an opportunity that will not be offered again this year—perhaps never again at these prices.

There are hundreds and hundreds of Crawford Range in Portland homes which are giving the same satisfactory service today as when installed 5, 10 and even 20 years ago.

Potter's
PREBLE STREET
The Store That Saves You Money

Next to
Keith's
Entrance

24-26
Preble
Street

**A-B
Gas Ranges**

We have recently added the 'A-B Gas Range to our already extensive assortment and recommend them as being the best value obtainable at a conservative price. They are included in our Club Plan offer.

**\$2.00
A Week**

Potter, Portland, Maine, Produces Publicity Stunt Which Arouses Lively Interest in His Store and Which Sells Stoves at the Same Time.

When selling sporting goods, it is an easy matter to arouse interest in the goods and your store. Most people are imbued naturally with the sporting instinct, and it is only necessary to employ a good, active clerk or two to have people coming to your store.

On the other hand, however, when it comes to selling stoves, the field is practically limited to home owners or renters—heads of families and the like. And advertising and sales effort must be exerted to get people into the store so that the clerks will have a chance to sell them.

The ad shown is very well designed for its purpose.

Stove Merchant Actually Got Prospect Out of Bed to Listen to His Story. Sale Made.

Here's a good story told us by J. W. Thurber, salesman for New Process Stove Company Division. "J. W." says that recently he was in Oswego, New York, calling on the Smith Hardware Company, New Process agent there.

Mr. Smith asked him to go along while he interviewed two Lorain prospects. They left the store in the early evening, sold the first, and then set out to visit the second. They rang the doorbell. They rang again and then heard the sound of a window being raised and a feminine voice inquiring, "Who is it?" Upon the two Lorain boosters stating mission, the voice remarked, "Wait a minute, Mr. Smith. I'll be right down."

In a minute the housewife attired in "kimona and slippers" opened the door and the next minute the three people were grouped about the dining room table whereon were spread photos of New Process Lorain-equipped gas ranges. It didn't take Mrs. Housewife long to select a good-looking model "Red Wheel" range. Mr. Thurber after leaving told Mr. Smith that he sure must have some "stand-in" with his trade when he could "get a prospect out of bed to buy a Lorain-equipped stove."

Make Folks Recognize Your Type of Advertising, So That Its Appearance Suggests Your Name.

Black Said: "A Man Need Not Be Tall or Short, Stout or Slim for Success. He Becomes Recognized According to His Appearance and Accepted Each Time as the Same Person."

EXTREMELY profitable examples of the application of intensive thought to create logical and impressive reasons for buying a product are gained by studying the advertisements offering products

observance no one would allow that there is anything peculiarly inspiring about a straw of this sort but the manufacturer, and even his caresses are inspired by paternalism.

However, the truth of the matter

using his product should include it in their daily purchases.

In casting about for the solution, he discovered that the answer had been tucked away in his fund of experiences ever since he was a babe in his mother's arms. It was exceedingly simple; in fact, so simple that it had been overlooked.

He remembered his mother admonishing him not to gulp his milk down; that to do this was bad for the digestion.

He immediately saw the strong appeal he could make to the mother by offering her a product that would protect the health of her loved one and at the same time spare her the pain of continually telling the child not to do so-and-so.

Now, it only remained for him to get his message before the mothers and then watch the increase in orders. The ad was his medium and it carried an illustration of a child drinking its milk through a straw, and the reading matter explained how the child was prevented from gulping its milk.

A wonderful piece of simple psychology, but one of the fundamentals of salesmanship.

There are hundreds of articles in every hardware store that can be moved with just such an appeal as the one mentioned heretofore. Human emotion is fundamentally the same the world over and it only requires a little added effort in the way of thought to increase the turnover of any stock of goods. Delve into the realm of human emotion and learn, like the manufacturer mentioned heretofore did, what excites action first, and then construct your advertisements to do what you desire of them. One of these we show in the accompanying illustration was taken from the *Sheboygan (Wisconsin) Telegram*.



SPRING OPENING

You will be delighted to have that spring longing satisfied when you see our new line of sporting goods.



Camp cook stoves and sundry auto supplies, make you want to get out in the open with your car.

The Mission House College decided upon our suits for their new equipment.

The suits are now on display in our window.





The gardening fever is the surest sign of spring. We all get it.

Now is the time to check up on your tools. Come in and let us help you select what you need.

PRANGE-GEUSSENHAINER CO.

Hardware—Heating—Sheet Metal

which from an exterior view do not appear have too much so-called sales talk.

One advertisement particularly expressive of this idea is that of a well-known manufacturer of soda fountain straws. From a casual

is that the manufacturer knew only too well the light in which his product was held and began his reasoning from this point. He knew that in order to increase his sales he would have to find some good reason why people who were not now

Arrival of Belated Spring to Bring Business Stimulation— Large Outputs Being Well Absorbed.

*Heavy Volume of Gold Imports Make Credit Easy—
Widespread Employment Makes Consumption Good.*

BOTH the steel and automobile industries are operating at high rates. This speaks well for current demands. Some slackening appears likely and logical. But the essential fact is that both industries are carefully following the demand and are not anticipating either boom or depression.

The steel industry in March made a remarkable record with an ingot output about equal to that of last April, when the peak for 1923 was reached with an annual rate of 49,000,000 tons. Pig iron production was nearly 3,500,000 tons. This measures the activity in general industry. But the month showed a decline in steel and iron prices, which now are respectively $3\frac{7}{8}$ and 26 per cent below a year ago.

A year ago there was a shortage of steel, but now production is fully equal to and perhaps slightly larger than consumption.

"For two-thirds of last month new business was practically at the high rate of February," the *Iron Age* says. "But in the last ten days there was a falling off in daily bookings. Developments point to keener competition, with indications that the March rate of production will not be maintained in the second quarter."

"The automobile situation presents a mixed front," the *Iron Trade* says. "Various builders have made an appreciable cut in their April production schedules, while a considerable group is maintaining output. Railroad buying of equipment is less prominent, but is well maintained in miscellaneous fields."

Copper.

We are assured that the statistical position of copper is improving. The claim is made with some show of authority that deliveries into domestic and foreign consumption for

the month of March will prove to be only a little less than those in February, and February shipments were reported 234,000,000 pounds.

March refinery output is forecast as 220,000,000 pounds, against 205,000,000 pounds in February, notwithstanding the fact that mine output in North and South America is reported to have been reduced to 190,000,000 pounds monthly.

This week producers' prices dropped $\frac{3}{8}$ cent to $\frac{1}{2}$ cent a pound, American Electrolytic being available at the close at $13.37\frac{1}{2}$ cents to 13.50 cents delivered.

The Chicago copper sheet base price is 21 cents.

Tin.

While the tin market has been undergoing major reactions and minor recoveries during the past fortnight, two important facts have been brought to light, first that the American consumers are better supplied than was commonly believed, and secondly, that there is no longer the same unanimity of purpose among the London operators who were responsible for the recent rapid rise in prices.

The American consumers, who were supposed to have large uncovered requirements, have shown no anxiety to buy, notwithstanding the sharp drop of 7 cents or 8 cents per pound, and have illustrated by their actions that they still retain the power to choose the time to buy.

Offerings of future Straits are at 48.75 cents. Other prices have ranged between 49 and 51 cents.

Chicago quotations are: Pig, \$54.50; Bar, \$55.50.

Lead.

Very little buying is still reported and while consumption at the moment is little, if any, less than it has been at any time, the evident increase in supplies is causing a feel-

ing of general distrust regarding present values.

The restraining policy of the producers seen some time ago, which withstood successfully the pressure towards further advances, is now seen to have been wise. Perhaps the opposite sentiment of distrust is now overdone or at least premature.

For middle West shipment, business is being done at 8.50 cents, East St. Louis. The outside market has lost its premium of 1 cent a pound for March, due to a break in London.

Chicago quotations are: American pig, 8.75 cents; bar, 9.75 cents.

Zinc.

Zinc has been dull and easy, reflecting the same condition abroad as affected copper.

Prices declined $\frac{1}{2}$ cent during March to 6.25 cents, East St. Louis, as of April 1.

Galvanizers have been buying only hand-to-mouth quantities, reflecting the character of their own bookings.

Chicago zinc sheet prices are not changed. Slab zinc is priced at 6.87 cents.

Solder.

Chicago warehouse prices on solder are as follows: Warranted, 50-50, \$33.50; Commercial, 45-55, \$32.75, and Plumbers', \$31.50, all per 100 pounds.

Wire and Nails.

Slight changes for the better are seen by wire products makers.

Consumptive demand appears to be fairly steady and miscellaneous small orders are being booked.

In small nails deliveries are four to five weeks deferred, and on some kinds of barbed wire post-date deliveries are being made, usually three or four weeks.

Prices are unchanged at 2.75 cents

and 3.00 cents, base Pittsburgh, for plain wire and wire nails, respectively.

Cement-coated nails have sold at 2.60 cents, base Pittsburgh, although 2.50 cents is understood to have been done on some particularly attractive business.

Bolts and Nuts.

Production of bolts and nuts has suffered no marked decline, but users are displaying more inclination to buy only for most urgent needs.

The let-down in the automobile industry is reflected in decreased specifications. One maker of bolts and nuts believes 60 and 10 off for large machine bolts is too low and is not actively soliciting business.

The regular rivet market is quoted at 2.75 cents, base Pittsburgh, and buyers of large lots have obtained them at 2.65 cents. The discount on small rivets is from 70 and 5 off to 70 and 10 off.

Tin Plate.

Announcement will not be made until later in the month by the American Sheet & Tin Plate Company and independent manufacturers of tin plate regarding the price for the last half.

An effort is being made by one large oil company of New York to place tin plate for export purposes for the last half, so that it can be rolled in May and June. Operations continue high, 95 to 100 per cent of capacity in the majority of cases on material for general line cans, packers' cans, fruit, fish and vegetable containers. Shipments are relatively high.

The price is firm at \$5.50 per base box of 100 pounds, Pittsburgh.

Some of the independent producers are paying high prices for pig tin, and state they are not coming out even.

It is possible that a higher quotation will be introduced for the last half. Stock tin plate continues to be disposed of at \$5 to \$5.25.

Sheets.

A large Detroit automobile manufacturer has purchased his April requirement of 15,000 tons of

sheets. The price is understood to have been 5.10 cents, Pittsburgh, although it is reported certain specific conditions governed the transaction.

Warehouses in the Detroit district have been stocked heavily with automobiles by producers who early in the first quarter anticipated a large spring demand. Until these stocks are moved the demand for high-grade sheets is not expected to broaden. Meanwhile producers are soliciting business at 5.35 cents, Pittsburgh.

About ten days ago a few makers set out to get business at 3.75 cents for black and 4.90 cents for galvanized. The number of producers meeting these prices has increased

to the point where these prices now are considered the going market. Blue annealed is quotable at 2.85 cents to 2.90 cents, Pittsburgh.

Old Metals.

Wholesale quotations in the Chicago district, which should be considered as nominal, are as follows: Old steel axles, \$18.00 to \$19.00; old iron axles, \$26.00 to \$26.50; steel springs, \$20.00 to \$20.50; No. 1 wrought iron, \$14.00 to \$14.50; No. 1 cast, \$18.50 to \$19.00, all per net tons. Prices for non-ferrous metals are quoted as follows, per pounds: Light copper, 9 cents; light brass, 5½ cents; lead, 6 cents; zinc, 4 cents, and cast aluminum, 17 cents.

Steady Prices Mark Pig Iron Market—Second Quarter Opens With Good Tonnages on Books.

March Production Showed Another Substantial Gain—New Buying Absent.

THE pig iron market is stagnant. No tonnage inquiries are before the trade this week. Sellers say they have experienced nothing like it in the past 20 years. Buyers are taking single carloads or 100 tons at a time.

Sales of pig iron at Chicago are slightly larger than last week, with several 1,000-ton lots reported. Activity remains low but the market is stronger and the undertone is improved.

The foundry melt is keeping up as evidence by good shipments of coke. Furnaces are active in working out iron booked early in the year.

The general feeling is that Washington disclosures are near the end and that improved weather conditions are certain to help business.

Occasionally small lots of resale iron are offered at \$24, but furnaces are firm at \$24.50. An interest circularizing the trade a short time ago with a small tonnage at \$24 now is asking \$24.50.

A Kalamazoo melter who inquired for 1,000 tons of malleable has withdrawn. A Milwaukee melter

seeking several hundred tons each of foundry and silvery irons also has withdrawn. A Chicago buyer, with Ohio plants, is inquiring for 300 tons each of foundry and malleable.

A southern seller offering to meet competition with barge iron from Sheffield is making only small sales. Birmingham producers also are inactive. Southern sellers are more apprehensive over the market than northern interests.

Sales of pig iron continue slow, and the tonnage is less than the output. However, many consuming industries are reporting a fair run of new business and more iron will have to be bought.

Furnace interests in this district say they are not selling at \$22.50, \$23 being their minimum, while \$23.50 is the price quoted by some manufacturers.

Furnaces on the Tennessee river in Alabama have a little difference in freight rates but the bulk of their business is at \$23. Delivery is being taken steadily by those companies which have bought liberally.

Chicago Warehouse Prices on Hardware and Metals.

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western Hardware and Metal prices corrected weekly.

METALS

PIG IRON.

Chicago Foundry..	24 50
Southern Fdy. No.	
2	28 51 to 29 01
Lake Sup. Char-	
coal	29 04
Malleable	24 50

FIRST QUALITY BRIGHT TIN PLATES.

	Per Box
IC 14x20 112 sheets	\$12 45
IX 14x20	14 05
IXX 14x20 56 sheets	17 57
IXXX 14x20	18 12
IXXXX 14x20	18 45
IC 20x28 112 sheets	27 50
IX 20x28	29 25
IXX 20x28 56 sheets	18 15
IXXX 20x28	17 20
IXXXX 20x28	18 25

TERNE PLATES.

	Per Box
IC 20x28, 40-lb. 112 sheets	\$25 60
IX 20x28, 40-lb.	25 60
IXX 20x28, 40-lb.	31 80
IXX 20x28, 30-lb.	34 70
IC 20x28, 35-lb.	30 80
IX 20x28, 35-lb.	32 70
IC 20x28, 30-lb.	18 30
IX 20x28, 30-lb.	21 15
IC 20x28, 15-lb.	17 05
IX 20x28, 15-lb.	15 75
IC 20x28, 8-lb.	14 05

COKE PLATES.

Cokes, 80 lbs., base, 20x28	\$18 85
Cokes, 90 lbs., base, 20x28	14 10
Cokes, 100 lbs., base, 20x28	14 45
Cokes, 107 lbs., base, IC	
20x28	14 85
Cokes, 135 lbs., base, IX	
20x28	17 40
Cokes, 155 lbs., base, 56 sheets	9 75
Cokes, 175 lbs., base, 56 sheets	10 45
Cokes, 195 lbs., base, 56 sheets	11 70

BLUE ANNEALED SHEETS.

Base	per 100 lbs. \$3 50
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ONE PASS COLD ROLLED BLACK.

No. 18-20	per 100 lbs. \$4 50
No. 22-24	per 100 lbs. 4 55
No. 26	per 100 lbs. 4 60
No. 27	per 100 lbs. 4 65
No. 28	per 100 lbs. 4 70
No. 29	per 100 lbs. 4 75

GALVANIZED.

No. 16	per 100 lbs. \$4 85
No. 18-20	per 100 lbs. 5 00
No. 22-24	per 100 lbs. 5 15
No. 26	per 100 lbs. 5 30
No. 27	per 100 lbs. 5 45
No. 28	per 100 lbs. 5 60
No. 30	per 100 lbs. 6 10

BAR SOLDER.

Warranted.	
50-55	per 100 lbs. 33 50
Commercial.	
45-55	per 100 lbs. 32 75
Plumbers	per 100 lbs. 31 50

ZINC.

In Slabs	6 37
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SHEET ZINC.

Cask lots, stock, 100 lbs.	11 75
Less than cask lots, 100 lbs.	12 25

BRASS.

Sheets, Chicago base	19 1/2 c
Mill Base	17 1/2 c
Tubing, brazed, base	25 c
Wire, base	17 1/2 c

COPPER.

Sheets, Chicago base	21 c
Mill base	20 1/2 c
Tubing, seamless, base	23 1/2 c
Wire, No. 9 & 10 B. & S. Ga.	17 1/2 c
Wire, No. 11, B. & S. Ga.	17 1/2 c

LEAD.

American Pig	8 75
Bar	9 75

Sheet.

Full Coils	per 100 lbs. 13 00
Cut Coils	per 100 lbs. 13 25

TIN.

Pig Tin	per 100 lbs. 54 50
Bar Tin	per 100 lbs. 55 50

HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

ADZES.

Coopers'.	
Barton's	Net
White's	Net

AMMUNITION.

Shells, Loaded, Peters.	
Loaded with Black Powder 18%	
Loaded with Smokeless Powder	18%
Winchester.	
Smokeless Repeater	
Grade	20 & 4%
Smokeless Leader	
Grade	20 & 4%
Black Powder	20 & 4%
U. M. C.	
Nitro Club	20 & 4%
Arrow	20 & 4%
New Club	20 & 4%
Gun Wads—per 1000.	
Winchester 7-8 gauge 10 & 7 1/2 %	
" 9-10 gauge 10 & 7 1/2 %	
" 11-28 gauge 10 & 7 1/2 %	

ASBESTOS.

Paper up to 1/16	6c per lb.
Rollboard	6 1/2 c per lb.
Millboard 3/32 to 1/4	6c per lb.
Corrugated Paper (250 sq. ft. to roll)	\$5.00 per roll

AUGERS.

Boring Machine	40 & 10%
Carpenter's Nut	50%
Hollow.	
Stearns, No. 4, doz.	\$11 50
Post Hole.	
Iwan's Post Hole and Well	35%
Vaughan's, 4 to 9 in.	\$15 60

AXES.

First Quality, Single Bitted (unhanded), 3 to 4 lb., per doz.	\$14 00
Good Quality, Single Bitted, same weight, per doz.	13 00

BARS, CROW.

Steel, 4 ft., 10 lb.	\$ 80
Steel, 5 ft., 13 lb.	1 40
Pinch Bars, 5 1/2 ft., 24 lb.	1 60

BARS, WRECKING.

V. & B. No. 12	\$0 34
V. & B. No. 24	0 43
V. & B. No. 324	0 57
V. & B. No. 30	0 48
V. & B. No. 320	0 63

BITS.

All Vaughan and Bushnell.	
Screw Driver, No. 30, each	\$ 27
Screw Driver, No. 1, each	16
Reamer, No. 80, each	41
Reamer, No. 100, each	41
Countersink, No. 13, each	20
Countersink, Nos. 14-15, each	27

BLADES, SAW.

Wood.	
Atkins 30-in.	
Nos.	6 40 26
	\$3 90 \$9 45 \$5 40

BLOCKS.

Wooden	45%
Patent	45%

BLOW TORCHES (See Firepots).

BOARDS.

	Per Doz.
Crystal, 32"	\$23 90
Wash.	
No. 760, Banner Globe (single)	per doz. \$5 25
No. 652, Banner Globe (single)	per doz. 6 75
No. 801, Brass King.	per doz. 8 25
No. 860, Single—Plain Pump	6 25

BOLTS.

Carriage.	
Small, roll thread	50 & 10%
Small and Large cut thread	50%
Machine.	
Small, roll thread	60%
Small, cut thread	50 & 10%
Stove	70-10%

BRACES, RATCHET.

V. & B. No. 444 3 in.	\$4 54
V. & B. No. 222 3 in.	3 39
V. & B. No. 111 3 in.	3 55
V. & B. No. 11 3 in.	3 02

BRUSHES.

Hot Air Pipe Cleaning.	
Bristle, with handle, each	\$0 85
Fire Cleaning.	
Steel Only, each	\$1 25

BURRS.

Copper Burrs only	40-10%
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BUTTS.

Steel, antique copper or dull brass finish—case lots—	
3 1/2 x 3 1/2—per dozen pairs	\$3 12
4 x 4	4 40
Heavy Bevel steel inside sets, case lots—	
per dozen sets	7 50
Steel bit keyed front door sets, each	1 90
Wrought brass bit keyed front door sets, each	3 25
Cylinder front door sets, each	7 50

CEMENT, FURNACE.

American Seal, 5 lb. cans, net	45
" 50-lb. cans, "	90
" 25 lb. cans, "	2 00
Asbestos, 5 lb. cans, net	45
Pecora	per 100 lbs. 7 51

CHAINS.

% in. proof coil chain per 100 lbs.	\$3 25
American coil chain	40 & 10%

CHIMNEY TOPS.

Iwan's Complete Rev. & Vent.	30%
Iwan's Iron Mountain only.	35%
Standard	30 to 40%

CHISELS.

Cold.	
V. & B. No. 25, 1/4 in., each	\$0 26
V. & B. No. 25, 1/2 in., each	41
Diamond Point.	
V. & B. No. 55, 1/4 in.	0 51
V. & B. No. 55, 1/2 in.	0 48

Firmer Bevelled.

Round Nose.	
V. & B. No. 65, 1/4 in.	0 29
V. & B. No. 65, 1/2 in.	0 40

Socket Firmer.

Cape.	
V. & B. No. 50, 1/4 in.	0 31
V. & B. No. 50, 1/2 in.	0 57

CHUCKS, DRILL.

Goodell's, for Goodell's Screw Drivers.	List less 35-40%
Yankee, for Yankee Screw Drivers	\$6 00

CLAMPS.

Adjustable.	
No. 100, Door (Stearns)	per doz. \$22 00
Carpenters'.	
Steel Bar.	List price plus 20%

Hose.	
Sherman's brass, 1/4-inch	per doz. \$9 48
Double, brass, 1/4-inch, per doz.	1 20

CLINKER TONGS.

Front Rank, each	\$1 75
Per doz.	18 00

CLIPS.

Damper.	
Acme, with tail pieces, per doz.	\$1 25
Non Rivet tail pieces, per doz.	25

COPPERS—Soldering.

Pointed Roofing.	
3 lb. and heavier	per lb. 40c
2 1/2 lb.	" 45c
2 lb.	" 45c
1 1/2 lb.	" 55c
1 lb.	" 60c

CORD.

No. 7 Std. per doz. banks	\$11 00
No. 8 " " " "	12 00

CORNICE BRAKES.

Chicago Steel Bending.	
Nos. 1 to 6 B.	10%

COUPLING HOSE.

Brass	per doz. \$2 20
-------	-----------------

CUT-OFFS.

Kuehn's Korrekt Kutoffs:	
Galv., plain, round or cor. rd.	
Standard gauge	40%
26 gauge	10%

DAMPERS.

"Yankee" Hot Air.	
7 inch, each	30c, doz. \$1 75
8 " " "	35c, " 2 40
9 " " "	30c, " 2 75
10 " " "	32c, " 3 00

Smoke Pipe.	
7 inch, each	\$ 35
8 " " "	40
9 " " "	50
10 " " "	60
12 " " "	90

Reversible Check.	
8 inch, each	\$1 50
9 " " "	1 70

DIGGERS.

Post Hole.	
Iwan's Split Handle (Eureka)	
4-ft. Handle	per doz. \$14 00
7-ft. Handle	per doz. 26 00
Iwan's Hercules pattern, per doz.	14 00

DRILLS.

V. & B. Star, 12-inch Length.	
1/4, 5/16 and 3/8, each	\$ 25
1/2, each	36
1, each	51
1 1/2, each	84
V. & B. Star, 18-inch Length.	
5/16 and 3/8, each	\$ 38
1/2, each	45
1, each	69
1 1/2, each	1 05

EAVES TROUGH.

Milcor.	
Galv. Crimpedge, crated	75%

ELBOWS—Conductor Pipe.

Milcor.	
Galv., plain or corrugated, round flat	
Crimp, Std. gauge	65%
26 Gauge	40%
24 Gauge	10%

Square Corrugated.	
Milcor.	
Standard gauge	50%
26 gauge	30%

Portico Elbows.	
Standard Gauge Conductor Pipe, plain or corrugated.	
Not nested	70 & 5%
Nested solid	70 & 5%

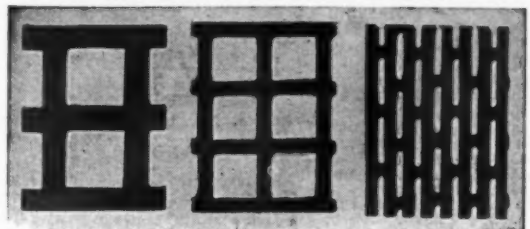
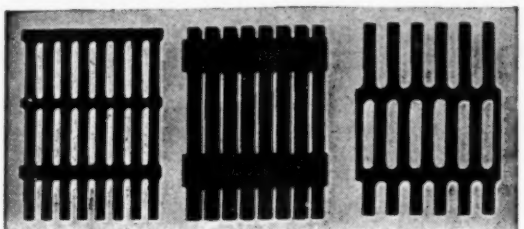
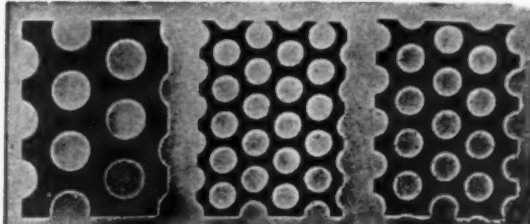
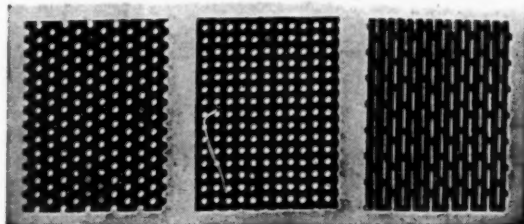
ELBOWS—Stove Pipe.

1-piece Corrugated. Uniform.	Doz.
5-inch	\$1 40
6-inch	1 50
7-inch	2 00

Special Corrugated.

6-inch	\$1 55
7-inch	1 65

PERFORATED METALS



All Sizes and Shapes of Holes in all Kinds and Thicknesses of Metal.

Punched Metal Grilles, Register Faces, Ventilators, etc.

Guard Material for Machines and Belts. We supply a complete line of Accessories

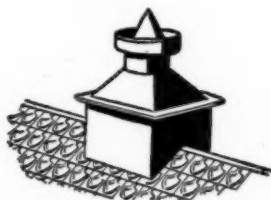
Screens for Grain, Minerals or anything to be screened.

Perforated Tin and Brass always in stock

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Complete data on the use of Copper
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RESEARCH ASSOCIATION**

25 Broadway - New York

Uniform, Collar Adjustable.	
5-inch	Dox. \$2 00
6-inch	2 10
7-inch	2 60

WOOD FACES—50% off list.

FENCE.	
Field Fence	60 1/2%
Lawn	53%

FILES AND RASPS.	
Heller's (American)	60-10%
American	60-10%
Arcade	50%
Black Diamond	40-10-5%
Eagle	50%
Great Western	50%
Kearney & Foot	50%
McClellan	50%
Nicholson	50%
Simonds	60%

FIRE POTS.	
Ashton Mfg. Co.	
Complete line	
Firepots and Torches	52%
Otto Bernz Co.	
No. 1 Furn. Gasolene with large shield, 1 gal.	\$ 6 75
No. B Furn. Kerosene, 1 gal.	15 12
No. 10 Brazier, Kerosene or Gasolene, 10 gals.	47 52
No. 5 Torch, Gasolene or Kerosene, 1 pt.	7 32
No. 85 Torch, Gasolene, 1 quart	5 40
No. 85 Torch, Gasolene, 1 pt.	4 05

Clayton & Lambert's	
East of west boundary line of Province of Manitoba, Canada, No. Dakota, So. Dakota, Nebraska, Kansas, Oklahoma, Arizillo, San Angelo and Laredo, Texas	52%
West of above boundary line	48%

Geo. W. Diener Mfg. Co.	
No. 02 Gasolene Torch, 1 qt.	\$ 5 55
No. 0250, Kerosene or Gasolene Torch, 1 qt.	7 50
No. 10 Tinner's Furn. Square tank, 1 gal.	12 60
No. 15 Tinner's Furn. Round tank, 1 gal.	12 00
No. 21 Gas Soldering Furnace	3 60
No. 110 Automatic Gas Soldering Furnace	10 50
Double Blast Mfg. Co.	
Gasolene, Nos. 25 and 35	60%
Quick Meal Stove Co.	
Vesuvius, F.O.B. St. Louis	30%
(Extra Disc. for large quantities)	

Chas. A. Hones, Inc.	
Buzzer No. 1	\$ 9 00
" " 2	12 00
" " 22	13 50
" " 42	15 00
" " 43	19 00

FREEZERS—ICE CREAM.	
Peerless and Alaska	
1 quart	\$2 95
2 quart	3 45
3 quart	4 10
White Mountain	
1 quart	\$4 85
2 quart	5 65

GALVANIZED WARE.	
Pails (Competition), 8 qt.	\$1 85
10-qt.	2 10
12-qt.	2 30
14-qt.	2 57
Wash tubs, No. 1	\$6 25
No. 2	7 00
No. 3	8 25

GARAGE DOOR HARDWARE.	
Stanley	All net

GAUGES.	
Marking, Mortise, etc.	Net
Wire	
Disston's	25%

GIMLETS.	
Discount	65% and 10%

GLASS.	
Single Strength, A and B.	
all sizes	83 & 85%
Double Strength, A, all sizes	84%

GREASE, AXLE.	
Frazers'	
1-lb. tins, 36 to case, per case	\$ 4 70
3-lb. tins, 24 to case, per case	7 80
5-lb. tins, 12 to case, per case	7 20
10-lb. tins, per dozen	10 40
5-lb. tins, per dozen	13 80
1-lb. tins, per dozen	19 80

HAMMERS, HANDLED.	
All V. and B.	Each, net
Blacksmiths' Hand, No. 9, 26-oz.	\$1 00
Engineers' No. 1, 28 oz.	1 00
Farrier's, No. 7, 7-oz.	93
Machinists', No. 1, 7-oz.	78

Nail.	
Vanadium, No. 41, 20-oz. each	1 59
Vanadium, No. 41 1/2, 16-oz. each	1 59
V. & B., No. 11 1/2, 16-oz. each	1 01
Garden City, No. 11 1/2, 16-oz. each	75
Tinner's Riveting, No. 1, 8-oz. each	79
Shoe, Steel, No. 1, 18-oz. each	65
Tack.	
Magnetic.	
No. 5, 4-oz. each	81

HAMMERS, HEAVY.	
Farrier's, No. 10, 10-oz.	\$1 01
HANDLES.	
Axe.	
Hickory, No. 1, per doz.	4 00
Hickory, No. 2, per doz.	3 60
1st quality, second growth	6 00
Special white, 2nd growth	5 00

Chisel.	
Hickory, Tanged, Firmer	
assorted	per doz. 55c
Hickory, Socket, Firmer	
assorted	per doz. 70c
File	per doz. \$1 20
Hammer and Hatchet.	
No. 1 per doz.	\$0 90
Second Growth hickory, per doz.	1 50
Soldering.	
Per doz.	\$2 40

HANGERS.	
Conductor Pipe.	
Milcor Perfection Wire	25%
Eaves Trough.	
Steel hangers	30%
Triple Twist wire	10%
Milcor Eclipse Wire	20%
Milcor Triplex Wire	15%
Milcor Milwaukee Extension	15%
Milcor Steel (galv. after forming) List plus	12 1/2%
Milcor Selflock E. T. Wire, List plus	40%

HASPS.	
Hinge, Wrought, with staples.	Net

HATCHETS.	
V. and B. Supersteel.	Each
Broad, No. 1, 24-oz.	\$1 43
Half, No. 1, 16-oz.	1 25
Half, No. 3, 27-oz.	1 37
Claw, No. 1, 19-oz.	1 81
Flooring, No. 1, 20-oz.	1 43
Shingling, No. 1, 17-oz.	1 20
Lathing, No. 1, 14-oz.	1 20
Lathing, No. 2, 17-oz.	1 25

Vanadium Steel.	
Half, No. 62, 22-oz.	\$1 82
Underhill Pattern Lathing, 9 row, 19-oz.	2 29

HINGES.	
Heavy Strap, in Bundles.	
4 inch, dozen prs.	\$1 26
5 " " "	1 74
6 " " "	2 12
8 " " "	2 54
Extra Heavy T in Bundles.	
4 inch, dozen prs.	\$1 90
5 " " "	2 01
6 " " "	2 52
8 " " "	4 30

HOES.	
Garden	Net

HOOKS.	
Box.	
V. and B. No. 3, each	\$0 26
Conductor.	
Milcor	
"Direct Drive" Wrought Iron for wood or brick	15%
Cotton.	
V. and B. No. 3, each	24
Hay.	
V. and B. No. 1, each	26

Bar Meat.	
V. and B. No. 26, 1/2", each	09
V. and B. No. 28, 1/2", each	16
Screw Meat.	
V. and B. No. 2, per gro.	6 50
Butchers' "S."	
V. and B. No. 6, each	08
V. and B. No. 8, each	11

HOSE.	
Per Ft.	
1/2-in. 2 ply molded	9 1/2c to 12 1/2c
1/2-in. cord	8 1/2c to 10c
1/2-in. wrapped	13 1/2c

HUMIDIFIERS.	
"Front-Range" Automatic.	
In single lots	50%
In lots of 10 or more	50-55%
In lots of 25 or more	50-10%
Vapor pans, etc., each	50%

IRONS.	
Sad.	
Genuine Mrs. Potts, nickel plated, per set	\$1 55
Asbestos No. 70, per set	2 10
Asbestos No. 100, per set	2 30
E. C. Stearns.	
No. OA Corner, doz. sets	\$2 50
No. OB	2 75

KNIVES.	
Butcher.	
Beechwood Handles, 6-inch blade	25%
Beechwood Handles, 7-inch blade	25%
Beechwood Handles, 8-inch blade	25%
Cooper's Hoop	25%
Drawing.	
Standard	25%
Adjustable	25%
Barton's Carpenters'	25%
Hay.	
Iwan's Solid Socket	25%
Heath's	25%
Iwan's Sickle Edge	25%
Iwan's Imp'd Serrated	25%
Hedge.	
Challenge	25%
Disston's No. 1	25%
Putty.	
Common	25%
Lander's	25%
Scraping.	
Beech Handles	25%
Lander's	25%

KNOS.	
Door.	
Mineral	per doz. \$2 00
Porcelain	2 00
Jet	2 00

LADDERS.	
Step.	
Common, per ft.	28c
Common, with Shelf, add 10c	
IXL	34c
Challenge, 6 to 9 ft.	55c
10 to 16 ft.	80c
Kant-Break, per lineal ft.	75c

LANTERNS.	
Per doz.	
Monarch tin, hot blast	\$ 8 25
Diets No. 2 cold blast	13 00
Best tubular	8 25
Competition lanterns No. 0 tubular	6 90

LAWN MOWERS.	
12-inch	\$5 20
16-inch	5 85
Ball Bearing.	
4 blade, adjustable bearing.	
14"	\$5 20
16"	7 80

LEATHER BELTING.	
From No. 1 Oak Tanned Butts.	
Extra heavy, 18-oz.	35%
Heavy, 16-oz.	40%
Medium, 14 1/2-oz.	40%
Light, 13-oz.	50%

LEATHER LACING.	
Cut, strictly No. 1	45%

LEVELS.	
Disston, No. 28 Asst.	\$12 85
" No. 13, 20 in., each	1 39
" No. 23, 24 in., each	2 40
" Shafting, 6 in.	19 80
" " 6 in. gr. glass	24 20
" No. 1 Asst.	5 75
" No. 2 Asst.	12 40
" 24-26 in., each	1 02
" 28-30 in., each	1 00

LIFTERS.	
Stove Cover.	
Coppered	per gro. \$6 00
Alaska	4 75

LOCKS.	
Barn Door.	
No. 60 Stearns'.	per doz. \$11 00
No. 80	20 00

MALLET.	
Carpenters'.	
Fibre Head No. 2, per doz.	\$12 80
" No. 3	15 50
" No. 3 1/2	20 50
Round Hickory, per	
doz.	\$3 00—5 00
Tinner's.	
Hickory	per doz. \$2 25

MATS.	
Door.	
National Rigid	5 & 10 & 15%
Acme Steel Flexible	50%

MITRES.	
Galvanized steel mitres, and caps, end pieces, outlets	30%
Milcor	
Galv. one piece stamped	40%

MOPS.	
Cotton, Star (Cut Ends).	
Pounds 12' 15' 18' 24'-3-oz.	
Per doz. \$4 00 4 35 5 50 7 00	
Enterprise	16 1/2%
Parker	50 & 5%

NAILS.	
Cut Steel	\$4 70
Cut Iron	4 70
Wire.	
Common	3 80
Cement Coated	3 25

NETTING, POULTRY.	
Galvanized before weaving	45-10%
Galvanized after weaving	45%

NIPPERS.	
Nail Cutting.	
V. & B. No. 30	73c
Double Duty.	
V. & B. No. 60	76c
Hoof.	
Heller's	40 & 10%
V. & B. No. 52, each	\$2 25

NOZZLES.	
Hose.	
Diamond	5 75
Magic	per doz. \$9 00

OILERS.	
Chase Pattern.	
Brass and Copper	10%
Zinc Plated	40 & 5%
Railroad.	
Brass	20 & 5%
Coppered	50 & 5%
Steel.	
Copper Plated	70 & 5%

OPENERS.	
Delmonice	per doz. \$1 30
Never Slip	" 60
Crate.	
V. & B. per doz.	\$7 25—11 00



*The Best Eaves Trough
Miter in the
World*

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your Jobber for
CHAMPION MITERS & ENDS
all Dependable Products

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PRODUCTS

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Sheet Metal Ornaments
and
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This is as fine an ear as can be made. Perfect, fine finish and nicely tinned. Write today for samples.



**BERGER'S
WROUGHT
STAR EARS**

Furnished in gross boxes or in bulk to suit the purchaser

We can furnish sizes 20, 30 & 40 stamped from sheet brass.

No. 40

Write today for our catalog which illustrates our complete line of ears

BERGER BROS. CO.
229 to 237 ARCH STREET
WAREROOMS AND FACTORY: 100 to 114 BREAD STREET
PHILADELPHIA, PA.

The difference between hand-dipped shingles and those stamped from galvanized sheets is this:

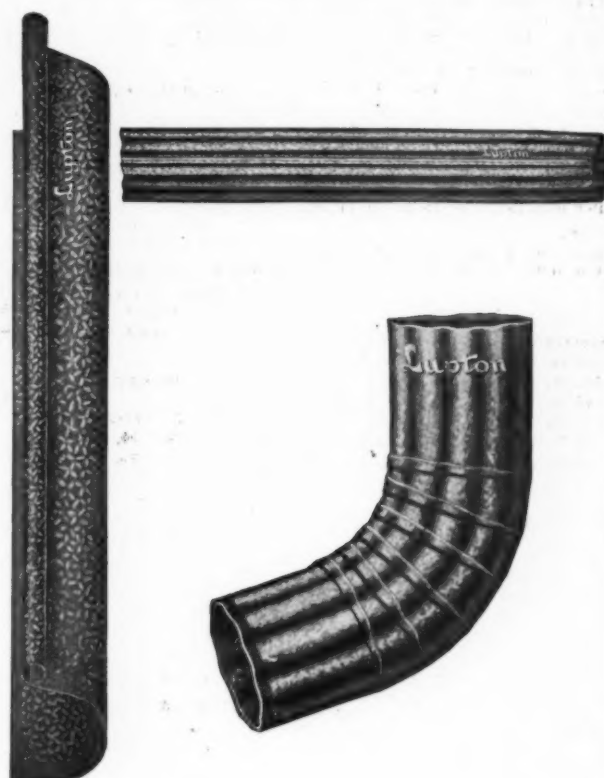


—Hand-dipped shingles are immersed *separately* in molten zinc after they have been stamped out of prime roofing tin.

The other shingles are not put through the hand-dipping operation because the sheets from which they are stamped are already galvanized. Hand-dipped of course are the better shingles, although we make both kinds.

We'll send our booklet, "Concerning That Roof"
Cortright Metal Roofing Co.
Philadelphia Chicago

Cortright Metal Shingles



Lupton

Elbows, Conductor Pipe, Eaves Trough, etc.

CUT out the time lost in trying to do a good job with poor materials. Lupton's Elbows are machine made, in one piece; they never vary in size, girth or shape. The Conductor Pipe and Eaves Trough are so made that but minimum labor is needed to erect them properly.

A well-erected job speaks for itself. Get to know the Lupton line—ask for new catalogue and list prices. Made from Armco Iron, Toncan Metal, Horse Head Zinc, copper and galvanized steel.

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